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THE

DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

EDITED BY

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VOL. XC.
JULY TO DECEMBER, 1890.

DUBLIN:
FANNIN AND COMPANY, GRAFTON-STREET.
LONDON: LONGMANS & CO.; SIMPKIN, MARSHALL & CO.
EDINBURGH: JAMES THIN.
PARIS: HACHETTE & CO.

1890.

CATALOGUED,
M. J.
Feb. 11. 1896.

DUBLIN: PRINTED BY JOHN FALCONER, 53 UPPER SACKVILLE-STREET.

THE DUBLIN JOURNAL
OF
MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

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ART. I—*A Contribution to the Study of Intra-cranial Complications of Chronic Otitis Media.*[a] By R. Glasgow Patteson, M.B., Univ. Dubl., F.R.C.S.I.; Surgeon to St. Vincent's Hospital (Extern Department).

The infrequnency with which cases of such nature as the following occur in the experience of any single surgeon, the difficulties which attended the diagnosis from the absence of localising symptoms, and the proved inadequacy of surgical measures to afford relief, will, I hope, prove sufficient reasons for bringing it with some detail under your notice:—

Chronic middle ear disease—trephining mastoid—thrombosis of lateral sinus—extradural abscess—pyæmia—secondary trephining and exploration of temporal lobe—death from embolic pneumonia.

Case.—M. P., aged nineteen years, was brought to the out-patient department of St. Vincent's Hospital about the middle of January, complaining of neuralgia of the left side of the face and neck. The pain, which had persisted for some time, had recently been increasing much in severity, so as to interfere with her occupation as a French polisher. On examination it was found that there existed a slight purulent discharge from the left ear, associated with total loss of hearing on that side, and further investigation showed almost complete destruction of the membrana tympani. She was accordingly transferred to Mr. Redmond for treatment as an out-patient. On the 28th of February, while attending Mr. Redmond, she was taken into hospital on account of some exacerbation of her symptoms, the pain in the ear having increased much in intensity. Leeches were applied behind the mastoid process with much relief, and for some days she remained comparatively free from pain. But little change occurred from this until March 10th; the ear was syringed out with boric acid solution frequently, and drops of a solution of boric acid in alcohol were instilled into the meatus. She then came under my care in the absence, through illness, of my colleague, Mr. M'Ardle. On the 11th I was asked to look at her, as she was complaining of intense thirst and pain on swallowing, associated with violent frontal headache and constipation. Both tonsils were found to be acutely inflamed, and the œdematous uvula was closely glued to the left one. The tongue was thickly coated with a white fur, and the breath was extremely fœtid. I then learned that Dr. Cox had seen her some days previously on account of some soreness of the tongue, for which he prescribed a wash, and of which there was now no trace. The throat was ordered to be frequently gargled with warm water, and freely swabbed out several times daily with the glycerin of tannic and carbolic acid, and purgatives were freely administered. This was followed by relief of the more distressing symptoms. On the evening of the 13th her temperature was found to be 106·4° F., associated with violent headache, referred principally to the left side; rigors and frequent vomiting were also present. Dr. Cox, who happened to be in the hospital at the time, was asked to see her, and found on examination a slight puffiness of the scalp about two inches vertically above the left auditory meatus—a phenomenon which was frequently sought for subsequently for the purpose of localising an intra-cranial collection of pus, but so far as the remainder of my colleagues and myself were concerned, without success. I must say here that Dr. Cox persistently adhered all through the case to his opinion that the scalp in this situation was less resilient than elsewhere. On the following morning, March 14th, Mr. Tobin and Dr. Cox saw her with me in consultation. Her temperature had fallen slightly to 104·6°, but otherwise her condition showed no improvement. She had suffered from intense and persistent headache during the night, causing her to cry out loudly, and had had one or two rigors, but was quite sensible, and referred the pain principally to a point behind the pinna and down along the anterior border of the sterno-mastoid muscle. The discharge from the ear was distinctly less than for some time previously. Her symptoms pointing to a collection of pus somewhere, and the most probable site being in the mastoid cells, both from the history of the case and from the tenderness she exhibited over that region, it was decided to trephine here, and provide a free exit for any accumulation of pus that might be found. Accordingly, at 11 30 a.m., assisted by my colleague, Mr. Tobin, I opened the mastoid process with an 8 mm. trephine, such as is used for the drainage-trephining of bone. The bone was excessively dense, and gave no evidence of any carious process, but rather of a sclerosing osteitis. The opening was made half an inch behind, and its lower border on a level with the lower edge of the external auditory meatus, but in trephining I did not allow sufficiently for the small skull I had to deal with, nor did I direct the trephine sufficiently upwards, and instead of opening the mastoid antrum I exposed the dura mater, as subsequent events showed, just behind the genu of the lateral sinus. No softening of the bone could be found on probing, and the exposed dura mater was perfectly healthy. As there seemed at the time to be no indication for further procedure in that direction, the wound was freely irrigated with corrosive sublimate solution (1–2000), a small drainage-tube inserted, the wound closed by a single suture, and an antiseptic dressing applied over iodoform gauze. The operation was performed under ether, which was well taken. She recovered rapidly from its effects without any excitement, and was talking quite sensibly before the dressing was fully applied. At 3 30, four hours after the operation, she had a slight rigor with vomiting (possibly due to the ether); her temperature was 103·6°, and her pulse 124, against a temperature of 104·6°, and a pulse of 140 before the operation. She said she "felt finely," the headache was gone, and her only complaint was that she had had nothing to eat for four days.

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[a] Read before the Dublin Biological Club.

Previous History.—From her friends I learned to-day the history of the case prior to the commencement of the present acute attack. When about three years old she was laid up with measles, in the course of which her left ear became affected, and discharged for some time after she became convalescent. A permanent slight deafness was the result, and she had been subject ever since to intermittent attacks of otorrhœa, especially during the winter, usually associated with a slight cold and sore throat. Her mother noticed that she was "liable to catch cold," and that there was always an associated increase of deafness. During the past seven or eight months it had been noticed by her friends that her hearing was becoming much worse, while her mental faculties seemed blunted; at times it required shouting to rouse her and get an answer, and she was more stupid and duller than previously. From being a bright and cheerful girl she had become quiet and morose. During this period she frequently complained of noises in her head, which she likened sometimes to "explosions," and again to the "ringing of bells;" and after these outbursts she always felt better. Two months ago violent pain in the face became a prominent symptom, and two or three "carious" teeth were drawn in the Adelaide Hospital, no treatment being applied to the condition of the ear. The pain was situated chiefly in the left cheek and below and behind the corresponding ear; it was much intensified on coughing, and it was noticed that during a burst of coughing she had to hold her head tightly between her hands. Naturally no result followed from the removal of the teeth, and not wishing to undergo any further dental tortures, she sought relief at St. Vincent's Hospital.

On that evening (March 14) her temperature was slightly higher—104·2°; a considerable drop, however, from that of the previous evening—106·4°. The headache was gone, and there was no return of the vomiting; she complained only of a throbbing sensation in the head on the left side, and of stiffness and pain in the neck, both being much increased by the slightest effort of moving and even on being turned gently in the bed. The same intense craving for food existed.

March 15.—As she was somewhat restless and irritable the previous evening, a sleeping draught was administered, after which she passed a good night and slept quietly, taking a little milk in her intervals of wakefulness. It may here be remarked that peevishness and irritability were throughout very prominent features of her condition, causing much difficulty in dealing with her, and leading one to discount, perhaps too liberally, the story of her woes. Associated with this—or rather, indeed, as part of it—she exhibited up to the very last, when she passed into a state of semi-coma, the most particular carefulness in having a towel closely applied about her neck when either the wound was being dressed or the ear syringed, and she exhibited the most lively resentment if a single drop was allowed to trickle down her neck. Considering the gravity of her condition, the outbursts of hyperpyrexia, almost volcanic in their suddenness, and the apathy she exhibited in most other respects, this attention to the most trifling detail struck me at the time as being remarkable, and perhaps due to an upsetting of her sensory equilibrium by some cortical irritation. When I saw her at 10 o'clock this morning she seemed better; her temperature was 102·8°, but before any observation of her pulse was taken, she was seized with a pretty severe rigor, which lasted for about ten minutes, and during which she vomited a small quantity of greenish, bilious fluid, in which floated a few curds of undigested milk. During the continuance of the rigor she was perfectly sensible, although her teeth were chattering and the bed shaking with its violence, and wanted to know if her friends would be let see her the following day (Sunday), and above all, when she would be given something to eat, as she was "just being starved." At the close of the rigor she was somewhat collapsed, and was sweating freely; her pulse was 120, and slightly weaker than before; but her tongue, which had been thickly furred during the attack of tonsillitis, was now much cleaner, her breath had lost its sickening odour, and on the whole she seemed considerably improved since the operation. She could now answer, with a little delay, any questions put to her; her cerebration was sluggish, though she was quite rational; but indeed throughout her intelligence was never of a very high order, and this, combined with her lack of power to localise her symptoms, and her inability to answer except in the most vague and indefinite terms, added a further hindrance to arriving at a definite opinion in the case. During that afternoon her temperature kept dropping and the improvement continued. Small doses of iced brandy had been given since the partial collapse after the morning rigor; and when I saw her at 5 o'clock her temperature was normal, her pulse, 100 to the minute, strong and full, and she expressed herself as "feeling grand." The bowels had acted naturally, the skin was normally moist, all the unnatural dryness (the *calor mordax*) of the previous days had disappeared, and everything seemed so favourable that I went away almost hoping that the operation, which had been surgically negative, would be morally positive, and that recovery was about to follow.

At 9 30 that evening I was summoned post haste to the hospital. At 8 p.m. she had been seized with a rigor and vomiting, succeeded by another more prolonged rigor at 8 30 p.m., during which she vomited a little milk she had taken in the interval. The temperature was then found to be 107·6°; and 20 grains of antipyrin were administered by Mr. Moore, the house surgeon, just before my arrival. In the absence of my surgical colleague, Dr. Cox kindly saw the girl with me; her temperature was then the same, pulse 150, but though so frequent, fairly strong. Fearing that some retained secretion in the wound might possibly be the cause of the hyperpyrexia, I removed the dressings and found them only stained with a slight serous discharge. I then took out the suture which closed the upper and anterior border of the wound, and broke down a tolerably firm adhesion which had taken place at this spot, in order to explore the deeper parts of the wound—only to find everything healthy, not a trace of suppuration, union evidently progressing rapidly. At a loss to account for the condition present, the dressing was renewed, and the ear then carefully examined, but the dressing was hardly stained with pus since the morning, the discharge for the past few days being very slight. The ear was carefully syringed out with boric lotion, without bringing away any retained discharge, then thoroughly dried with pledgets of absorbent cotton on a fine forceps, and then the meatus and external parts were freely sprinkled with iodoform, the whole being covered with absorbent cotton—a mode of dressing which was found admirably adapted to prevent the spread of infective micro-organisms to the scalp wound. As the temperature was now falling, and there were no indications for further immediate operative interference—an opinion in which Dr. Cox fully concurred—it was decided to procure a good night's rest by the administration of a sleeping-draught same as on the previous night. When I left her at 11 30 p.m. the temperature had fallen to 103·6°, exactly four degrees lower than it had been four hours previously, the pulse 140, strong and regular. The bowels acted twice after the rigors, the first motion being semi-solid, and the second very fluid and pale in colour.

March 16.—This morning I found her sitting up in bed having her hair dressed—at least as much as could be disentangled from the dressings—and in reply to my query she said she "felt grand"—a favourite expression. Her temperature, taken by two observers at half an hour's interval, was sub-normal, 96·6°; her pulse 88, full, strong, and regular. She had slept fairly well during the night, with one or two restless intervals, and still possessed, or was possessed by, the same insatiable desire for food, though she refused beef-tea, chicken-jelly, and arrowroot when offered to her, and was living solely on milk, of which she consumed nearly five pints daily. Her tongue was fairly clean, except just at the back, and all traces of the inflammation of the tonsils were gone. The wound was dressed; it was healthy, but showed no further signs of healing. The discharge from the ear continued small in amount. On this occasion, Dr. M'Hugh kindly saw the case with me, and suggested that it might possibly, in view of the slight diarrhœa the previous evening, be a case of typhoid fever, but careful investigation failed to disclose any signs or symptoms of that disease. At this period the question of further operative interference was most anxiously discussed, and I had the kind assistance of all my colleagues at many conferences, only to postpone on each occasion the day of action, in the hope that some localising symptom might develop and disperse our doubts. At this time, as on previous occasions. Dr. Cox was firmly convinced that there was pus beneath the dura mater, owing to the presence of a slight puffiness of the scalp at a particular spot situated about one and a half inches above the external auditory meatus, and indeed on several occasions urged me to trephine at this spot, but, as none of my remaining colleagues or myself could detect any special difference at this spot, the scalp over the left side being universally somewhat œdematous, and as a collection of pus in this spot would probably give rise to some symptoms—at least of cortical irritation—we agreed that there was no indication for any operative procedure in the absence of some localising symptom more definite in character than that afforded by the somewhat doubtful "puffy swelling." At 12 noon there was a slight rigor, and the temperature rose to 99°. At 3 p.m., another took place accompanied by vomiting; but it may here be observed that, since the operation, the vomiting had lost any cerebral character it had ever possessed, and now only accompanied the rigors, the rejected matter consisting solely of undigested milk or wine, whichever happened to have been most recently taken. The temperature had now risen to 105°, and 10 grains of antipyrin were administered by the house surgeon, but without effect, as at 6 o'clock the temperature remained at the same point. She was, however, quite sensible and cheerful, having been allowed by the sister in charge to see her friends for a few minutes in the afternoon. Her only complaint was of thirst, and as she would drink only pure milk, and could not be induced to take it either with soda or lime water, it was difficult to prevent some slight gastric disturbance from the irritation of the undigested curds. She had taken a little rice and milk this afternoon, given to gratify her longing for "solid" food. When I saw her again at 8 30 the same evening she was quiet and drowsy—more so than at any time since the beginning of the present acute illness; her temperature had fallen slightly to 103·5°—a degree and a half in two hours—and as it seemed on the downward slope for the night I left her, hoping that the pyæmic process had exhausted its virulence, and that perchance nature might work a cure where art had so signally failed. At this time I had been driven to the conclusion, mainly by a process of exclusion, that we had to deal with a case of septic thrombosis of the lateral sinus, with probable softening of the clot, giving rise to pyæmic symptoms by the occasional detachment of swarms of septic emboli; but so far no secondary symptoms were manifest. On this afternoon she passed a considerable quantity of dusky reddish urine, which, examined microscopically, was found to contain a large number of red blood-cells, mostly unaltered in appearance, but others showing horse-chestnut or crenate forms. The specific gravity was 1·018; reaction, acid; it contained no sugar, and no more albumin than was accounted for by the quantity of blood present.

March 17.—Shortly after I saw her last evening the bowels acted naturally, the fæces being of normal consistence; but soon afterwards it was noticed that the temperature was again on the rise, and at 11 30 it had reached 107·5°, or within one-tenth of a degree of the previous evening's highest point. This rise, like the previous one, was neither preceded nor accompanied by any rigor; but at 4 a.m. this morning it was succeeded by a rigor which lasted with but slight intermissions for two hours. Her temperature was then 104°, and, fearing that it was on the rise, the resident in charge of the case was called, and administered 10 gr. of antipyrin. At the close of the rigor the temperature was found to be normal, at which point it still remained when I saw her at 10 o'clock. Her pulse was then 100, full and strong, and she was resting quietly, as if from the exhaustion of the rigor. The wound was dressed; it remained in exactly the same condition, and the discharge from the ear continued slight in amount. There was still the same craving for solid food, and she was given some rice, which she ate with apparent relish. At 3 30 p.m. she had a rigor which lasted for fifteen minutes and her temperature shortly afterwards was found to be 105·5°. During this afternoon Dr. W. Thomson kindly saw the case with Mr. Tobin, and they were fortunate in observing a pretty severe rigor, which lasted for fifteen minutes, and was unaccompanied by sickness or vomiting. She complained only of pain in the head and at the pubes on coughing. The cough, which now first began to prove troublesome, I attributed to a slight return of the tonsillitis, as she complained of some pain about the angle of the lower jaw; but, as she resented any interference with her throat, this could not be verified. Up to this point one of the most striking features had been the complete remission of all symptoms or signs of exhaustion in the intervals between the outbursts of fever, so that any one seeing her during these remissions could not fail to under-estimate the gravity of the case, and to decry surgical interference. But at this period she began manifestly and rapidly to lose ground. Her features became thin and drawn, and her skin assumed an ashen, almost cadaveric tint. Her fretfulness and irritability became much more marked, and she was much drowsier during the day, though she could always be roused by speaking loudly to her, and at night slept well without opiates. Beyond the pain in her head on coughing, she only complained of stiffness in the neck and tenderness on pressure along the anterior border of the sterno-mastoid muscle, along the posterior margin of which ran a few very slightly enlarged glands which were quite painless on pressure. At half-past eight that evening her temperature had fallen to 104°, her pulse was 152 to the minute, and for the first time her respiration was noticed to be hurried—a point to which at the time I did not attach sufficient importance. The urine passed to-day gave normal reactions, and was free from blood. At 10 30 p.m. the temperature had fallen still further, to 102°, but during the night she was seized with another rigor, and the temperature rose to 103·5°.

March 18.—This morning at ten o'clock Drs. Thomson and Thornley Stoker kindly joined Mr. Tobin and myself in consultation. At this time, in the absence of any secondary evidences of pyæmic embolism, I had abandoned the theory of lateral sinus thrombosis, and had been constrained to regard the hyperpyrexia as due to septic absorption and not to septic diffusion. The only remaining possibility seemed an abscess in the temporo-sphenoidal lobe, and the question was—should an exploratory operation be undertaken? Her condition, however, at this particular time, to those who had not followed the case day by day—nay, even hour by hour—seemed so good, and so far removed from any chance of an immediately fatal termination, that Drs. Thomson and Stoker and Mr. Tobin thought nothing would be lost by delay, and advised waiting still longer for the advent of some localising symptoms. Her temperature was then 100·8°; pulse 100, fairly good. She seemed to be a little drowsier, and more disposed to sleep, but could be readily roused, and answered questions quite sensibly. Her eyes, which throughout had reacted normally and equally to light and accommodation, were this morning examined by Mr. Redmond, who pronounced both optic discs normal. Dr. M'Hugh drew my attention to the fact that there seemed to be more marked retraction of the head now than at any previous period, and that her aspect also was suggestive of a secondary meningitis grafted on the previously existing disease; but, on questioning her as to pain, she still reiterated her statement that the only pain she had was in the neck, on attempting movement, and in the head on coughing, and she was most desirous that something should be given her to relieve the cough. It may be mentioned here that Mr. Stoker had suggested the possibility of this cough being due to basal meningitis. Later in the day Dr. Ball kindly saw her with me, and coincided in the view that, as she was manifestly sinking, and the most probable lesion was an abscess in the brain, an exploratory operation should be undertaken without further delay. At his suggestion hourly observations of the temperature were made during this afternoon, with the result of showing that the fever was now assuming a more continuous type, the limits of range observed being 101° and 103·6°. Later in the afternoon, on consultation with my colleagues, it was decided that, in view of her rapidly progressive enfeeblement, an exploratory operation could not be much longer delayed if any hope of a successful result was to be looked for, and it was accordingly arranged that, should no marked improvement in her condition take place during the night, the brain should be explored for an abscess on the following morning. Gradually increasing drowsiness, and difficulty of rousing her were the most marked features of her condition during the evening, and she passed a good night except for a slight return of the diarrhœa, the bowels acting three times, the last motion being very liquid and "lemon-coloured." At 10 30 p.m. her temperature was 103°; pulse, 180, weak and fluttering; the respirations very rapid and shallow—48 to the minute.

March 19.—This morning her temperature showed a slight fall, to 102°, her pulse had dropped to 120, and the respiration to 36. A careful examination was again made by Dr. M'Hugh to eliminate the possibility of enteric fever being overlooked, with a negative result.

Accordingly, at 10 30, assisted by my colleague, Mr. Tobin, I proceeded to explore the temporo-sphenoidal lobe of the brain. Chloroform was administered by Mr. Moore, a preliminary hypodermic injection of one-fourth of a grain of morphin having been previously administered, following the lines laid down by Mr. Horsley, who selected chloroform in preference to ether in brain operations, because "this drug caused well-marked contraction of the arterioles of the central nervous system, and that consequently an incision into the brain is accompanied by very little oozing, if the patient be under its influence."[a] As objections to ether may be mentioned—a tendency to cause cerebral excitement, and to produce venous congestion by interference with the respiration. Adopting a modification of Mr. Barker's guide lines, a spot was selected one inch and a quarter behind the centre of the external auditory meatus, and one inch and a half above this, at which to apply the pin of the trephine. Mr. Barker's rule is an inch and a quarter behind and an inch and a quarter above—a point which he says will bring the operator down on the posterior third of the middle temporo-sphenoidal convolution—but, in order to avoid any possibility of wounding the lateral sinus, I adopted in preference the measurement given above. Having raised a semilunar fold of the scalp and stopped all bleeding with clamp forceps, I divided and carefully reflected the periosteum, and applied the pin of a 26mm. trephine at the spot indicated above. Considerable difficulty was experienced in removing the disc of bone, owing to the irregularity of depth, and on removal eventually by prising up the free margin, this was found to be due to the bony ridge forming the upper margin of the groove for the lateral sinus, while the sinus itself was found occupying the whole lower third of the opening made by the trephine. A semilunar incision round the edge of the dura mater was thus rendered necessary, and the pia mater being exposed, some free hæmorrhage took place from its engorged vessels, necessitating the application of a couple of ligatures. Though the brain substance seemed softer and more friable than normal, yet no unusual bulging into the wound indicated any marked increase of intra-cranial tension. The exposed membranes were healthy. A grooved needle was then passed directly inwards in a horizontal direction for an inch and a half, but without result, as it was found the groove and eye of the needle became rapidly blocked by the soft and almost diffluent brain substance.

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[a] Quoted by Jacobson, Operations of Surgery, p. 239.

Accordingly a fine trocar and canula was then passed in several directions—upwards, downwards, and laterally—at depths varying from one inch and a quarter to one inch and three-quarters, but no pus could be anywhere reached. As the girl was in a very exhausted condition it was not deemed advisable to do anything further. The wound was freely irrigated with warm boric solution, and an attempt was then made to close the dura mater, but owing to the proximity of the lateral sinus and the cramping of the available space it failed. The skin-flap was then replaced, a few catgut sutures inserted, and a small drainage-tube placed in the inferior angle of the wound. Firm pressure was applied to the flap, and a large antiseptic dressing over all. Only a small quantity of chloroform was used, the operation lasting three-quarters of an hour, and the girl recovered consciousness before the dressing was applied, but on being placed in bed she suffered from grave collapse—so much so that at one moment I feared all was over. However, with the aid of warmth, brandy, injections of ether over the heart, and friction of the limbs, she rallied, and at 3 p.m., nearly four hours after the operation, though still in a somewhat dazed condition, she recognised me on entering the ward. She was quite unable to speak, though this was partly from the parched condition of her mouth and throat, as she refused not only to take any nourishment by that channel but rejected iced brandy and water, and small pieces of ice placed in her mouth to relieve the dryness.

She suffered also a good deal from the mucus which collected in her throat, and which she was now unable to get rid of by coughing. Her temperature was 101·5°; pulse, 140; respirations, 36 to the minute. Nutrient zyminised enemata were ordered every three hours. At 6 p.m. the temperature had fallen one degree—to 100·5°—but no other marked change had occurred in her condition. At 9 30 p.m. her condition was manifestly worse; her temperature had fallen to 99·5°, while the pulse and respirations had both increased in frequency—160 and 40 to the minute respectively. Opium and ammonium carbonate were combined with the nutrient enemata, but it seemed impossible that she could live through the night.

March 20.—She slept at intervals during the night, but resisted with all her might the administration of the enemata, so vigorously as at times to astonish the nurse. At 4 a.m. the enema was returned about an hour after administration, and at 7 a.m. it was immediately rejected. At 10 a.m. the temperature was 99°; pulse 140, and markedly dicrotic; respirations shallow and hurried, and a mucous rattle in her throat. Her condition was clearly hopeless in her inability to retain any form of nourishment or stimulant. A starch and opium enema was ordered to be followed in half an hour by a nutrient one, but even this failed to overcome the irritability of the bowels, and the attempt was given up as hopeless. From this period insensibility gradually deepened into coma, and at 12 30 p.m. she died, exactly twenty-five hours after the operation.

Post-mortem Examination.—It was only after much difficulty that even a limited inspection of the body could be obtained. It was made 24 hours after death. The scalp wounds made at the two operations were healthy, free from any trace of suppuration, but they showed no signs of healing, which, of course, was not to be expected in the more recent one. The exposed dura mater was somewhat discoloured. On removing the skull-cap the dura mater was found tolerably firmly adherent posteriorly on either side of the superior longitudinal sinus, more markedly on the right side. Its surface, as far as exposed, seemed healthy, smooth, and glistening; the pia mater showed a network of deeply-congested vessels, but the membrane itself was healthy, exhibiting no signs of inflammatory change. There was no alteration in the shape of the brain—no localised bulging or any sign of intra-cerebral pressure. The cortical substance of the left temporo-sphenoidal lobe was, however, decidedly softer than on the right side, especially in the inferior convolution. The cerebro-spinal fluid was not appreciably increased in quantity, and was clear and transparent. On cutting into the anterior attachment of the tentorium cerebelli on the left side, the dura mater covering the posterior surface of the petrous bone was pierced and pus welled freely up. It was greenish-yellow in colour, but was not fœtid. Over the anterior surface of the petrous bone, and corresponding to the roof of the antrum, the dura mater was thickened and darkened in colour. At a corresponding spot on the border of the inferior temporo-sphenoidal convolution a small portion of the pia mater showed a slightly greenish discoloration, and at this spot the softening of the cortical substance was rather more marked. The site of the punctures made at the operation was shown by a distinct loss of the superficial cortical substance at a spot which corresponded to the boundary between the middle and inferior temporo-sphenoidal convolutions, about the junction of their middle and posterior thirds. At this spot, about a quarter of an inch from the surface, a recent blood-clot about the size of a walnut was found—evidently a small hæmorrhage which had taken place in the track of the exploring needle.

On further detaching the dura mater from the basal fossæ it was found that a considerable collection of pus occupied the outer two-thirds of the anterior surface of the petrous bone, covering the tympanic plate and passing backwards on to the posterior surface of the bone, where a large quantity of pus was also found extending to the margin of the lateral sinus. It did not extend from the roof of the tympanum along the squamous portion of the temporal bone. The lateral sinus was then examined. It was occupied by a firmly adherent thrombus which was in places breaking down into a purulent material, especially at the point corresponding to the trephine opening. It extended forwards as far as the jugular fossa and backwards to the meeting of the sinuses. The superior petrosal sinus was obliterated. Over the roof of the tympanum the dura mater was thickened and separated into two layers by a small abscess which communicated by a small opening with the larger abscess outside. At a corresponding spot the petrous bone, when exposed, was found to be roughened and dark in colour, and on being drilled gave evident signs of softening, the whole bone beneath being disintegrated into a mass of caseous and carious matter which could be easily scooped out. A probe passed through the dura mater at the posterior margin of the first trephine opening came through just *posterior* to the edge of the lateral sinus where it bends sharply round to groove the posterior wall of the tympanum, its course in this case lying very much farther forwards than usual.

On making sections through the hemispheres, beyond what has been already mentioned in the cortical layer of the temporal lobe, nothing pathological was found. The ventricles were normal, there was no excess of fluid, and the basal ganglia were healthy. The pons and medulla were in every respect normal, as was also the cerebellum.

Unfortunately no other part of the body could be inspected.

Microscopic examination of the thickened dura mater showed only the usual appearances of the wall of an abscess cavity. Stained by Gram's method no micro-organisms could be found.

In reviewing the history of this case in the light of the *post-mortem* examination, it is plain that the septic softening of the thrombus in the lateral sinus, and subsequent detachment of emboli carried into the circulating blood, were the causes of the pyæmic symptoms, mainly evidenced by the hyperpyrexia and rigors. Too little importance was at the time attached to the rigidity of the muscles of the neck and the tenderness along the anterior margin of the sterno-mastoid muscle and behind the angle of the jaw, as these symptoms probably indicated the extension of the septic thrombosis into the internal jugular vein. Coincident with this extension was the development of the short, troublesome cough, unaccompanied by expectoration, which began on the 16th—four days before her death—and which lasted until she became incapable of the effort of coughing during the closing hours of life. I have now no doubt that this was due to the development of an embolic pneumonia—the commonest cause of death in these cases; as Dr. Pitt has shown that in 70 per cent. of the cases of lateral sinus thrombosis occurring in Guy's Hospital during a lengthened period, death resulted from pulmonary pyæmia, "and in more than a third there were no other lesions."[a] And Gowers also states that this complication occurs in one half of the cases;[b] so that had the full significance of these symptoms been appreciated at the time, I need hardly say it would have had an important bearing on the question of further operative interference.

I have already referred to the complication that was caused in the operation by the position of the lateral sinus in the trephine opening; indeed, as will be seen from the examination of the bone, had it not been thrombosed and it walls abnormally thickened by the associated phlebitis, wound of it would have been almost inevitable. From the examination of the few skulls available I have arrived at the conclusion that Mr. Barker's lines may be very good guides for exposing the lateral sinus, but are absolutely unreliable for the purpose for which they were devised—to expose the temporal lobe in the region of the centre of its middle convolution. In my case, going a quarter of an inch above this point, I only arrived at the boundary line between the middle and inferior convolutions, just at the junction of their middle and posterior thirds; so that in future cases I would certainly adopt a point fully three quarters of an inch above that recommended by him.

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[a] Brit. Med. Journal, March 22, 1890.

[b] Diseases of the Nervous System. Vol. II., p. 418.

The extreme variability of the course of the lateral sinus is another complication in dealing with these cases, and one to which sufficient attention has not been directed. In some cases it is separated by a considerable bony interval from the posterior surface of the tympanum; in others it passes much farther forwards, grooving the tympanic wall, from which it is separated only by an extremely thin plate of bone, and bending back at a right angle in an almost horizontal direction along the posterior aspect of the petrous bone. This course, which I found to be the commonest variety in the few skulls I have had an opportunity of examining, gives rise to another complication in trephining in this region, while it also furnishes a ready explanation of those cases in which thrombosis of the lateral sinus, or extradural collections of pus in the posterior fossa, occur without the mastoid cells being in the slightest degree affected by disease. This is in opposition to the views propounded by Toynbee, and still adhered to in the text-books, that disease of the external meatus and mastoid cells leads to sinus thrombosis and cerebellar abscess, while disease of the tympanic cavity causes cerebral complications; but while this theory undoubtedly holds good in many instances, it cannot be accepted as an unfailing guide, and the surgeon who founds his diagnosis on it alone will find himself involved in frequent errors.

Diagnosis.—The possibility of diagnosticating from the symptoms alone, thrombosis of the lateral sinus at a period sufficiently early to be amenable to surgical treatment, is a question of much interest and one involved in many difficulties. "The cerebral symptoms of occlusion of the lateral sinus," writes Gowers, "are not distinctive, ... those that occur are due more to the meningitis which usually coincides, than to the closure of the sinus." And further he adds: "In some cases the local symptoms have been so slight that the occurrence of a morbid process was not suspected until the signs of secondary pulmonary abscesses were found."[a]

In the Hunterian Lectures delivered by Mr. A. E. Barker in the Royal College of Surgeons in June, 1889,[b] and in the recent Goulstonian Lectures of Dr. Newton Pitt,[c] the latest contributions to our knowledge of the secondary intra-cranial affections of ear disease will be found. "Phlebitis of the lateral sinus," says Mr. Barker, "is usually limited to that part of the vessel which lies in contact with the sulcus lateralis on the inner aspect of the mastoid process. . . . Occasionally the inflammation extends downwards into the jugular vein, . . . but it is rare for the process to extend backwards against the current of blood, and this only occurs, so far as we know, in those cases in which thrombosis has also taken place." Here a line of demarcation is drawn between phlebitis and thrombosis of septic origin which pathological experience will hardly bear out, as the one process is only the initial stage of the other—a septic phlebitis invariably leading to occlusion of the venous trunk, whereas a traumatic phlebitis may not necessarily do so; and it can hardly be supposed that any one ever imagined that septic emboli travelled "backwards against the current of the blood." But Mr. Barker seems to have strangely forgotten the fact that the first result of phlebitis is a slowing of the blood-stream passing the damaged spot, with subsequent stagnation of leucocytes, and, unless the irritant is removed, speedy thrombosis, which, gradually extending backward through the stagnant blood, forms a pathway for the spread of the infective micro-organisms. And thus it is that we have at times a thrombosis which for a long period may give rise to no symptoms, until at last infecting bacteria gaining entrance, subsequent degeneration and liquefaction occur in the clot, which then first becomes a source of danger to the life of the individual.

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[a] Diseases of the Nervous System. Vol. II., p. 420.

[b] Illustrated Medical News. Vol IV. July 3 to Aug. 5, 1889.

[c] British Medical Journal, March 22, 1890. Vol. I., p. 643.

In all varieties of complication to which the subjects of old-standing disease of the middle ear are liable, there are many symptoms common to their initial stages—such as, increased pain in the ear, tenderness over the mastoid process or along the sterno-mastoid muscle, general irritability and peevishness, foul tongue, associated with persistent nausea and vomiting, headache, which may be either frontal, parietal, or occipital, independent of the seat of the disease, occasionally diarrhœa, and a rise of temperature, which may be associated with rigors, and is perhaps the most frequent of all; these symptoms, collectively, or any combination of them, may be present, thus affording but little aid to a differential diagnosis. They all, as Mr. Barker happily puts it, indicate "an acute septic infection grafted on an ordinary saprogenic suppuration," and are accordingly more or less common to all.

It may be well to discuss here briefly some of those symptoms which are usually regarded as being more closely associated with intra-cranial lesions.

Optic neuritis is perhaps the symptom to which most importance has been attached. Very brief consideration will suffice to show that as a diagnostic guide it is absolutely unreliable. It has been observed in meningitis, in cerebral and cerebellar abscess, in thrombosis of the lateral sinus, in extra-dural collections of pus, unassociated with any brain lesion, and in mastoid suppuration; but it has been just as often absent in all of them. From a careful analysis of 57 fatal cases of ear disease occurring in Guy's Hospital from 1869 to 1888, optic neuritis was noted in only four out of 28 cases of cerebral abscess, in which any record of the condition of the optic discs was preserved, and in two of these there was an associated sinus thrombosis. It was also noted in one case of cerebellar abscess with a similar complication; whereas in 22 cases of lateral sinus thrombosis, where the condition of the eyes was noted, the discs are stated to have been normal only once, and in six cases well-marked neuritis was present, and Dr. Pitt arrives at the conclusion that "on the whole, optic neuritis is more suggestive of sinus thrombosis than of the other lesions."[a]

Vomiting is another symptom on which much reliance cannot be placed; it has been observed in all the conditions mentioned above, and seems quite as frequently present in thrombosis of the lateral sinus and mastoid suppuration, as in cases of cerebral abscess.

To the presence of "*slow and sluggish cerebration*," as a symptom of cerebral abscess, Mr. Barker calls special attention, and remarks that "it is present just as markedly with cerebellar abscess as with collections in the temporo-sphenoidal lobe," while "it is not a symptom of the other complications of temporal bone-disease.[b]

As to the frequency of its occurrence I have had no means of arriving at a conclusion; but it certainly had been in the case detailed above for some months previously a well-marked symptom, and one to which my special attention was directed on several occasions by the patient's friends.

In all cases of abscess, no matter what their seat, the respiration is slow and shallow, but regular. If, however, a secondary basal meningitis has occurred, most markedly when the posterior fossa of the skull is affected, the slowness is associated with irregularity of breathing, and in several cases Cheyne-Stokes' respiration has been noticed.

Dr. Nugent recently brought forward here an interesting case of tubercular meningitis confined to the convexity of the brain in which this type of respiration was present, and its occurrence in such a connection would largely discount any value it might possess as a symptom of secondary septic meningitis, which is always (at first at least) confined to the base.[a]

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[a] Loc. cit., p. 647.

[b] Loc. cit., p. 86.

The most reliable guide in the great majority of cases seems to be the course of the *temperature*, and the association of repeated rigors, with marked oscillations of temperature, would appear to be the most constant symptom of sinus thrombosis. It is difficult to arrive at a very definite type for each class of cases, so rarely are these complications met with singly, two or more being present in the majority of cases; but by collating, as far as possible, only the simpler cases in each class, Mr. Barker thinks he has succeeded in establishing a type for three of these which may be conveniently summarised in the descriptions he has appended to the charts :—

"Pyæmia.—The temperature lines are of extreme irregularity and the oscillations frequent.

"Meningitis.—The temperature lines are not so irregular as in pyæmia, but often higher.

"Cerebral Abscess.—The temperature lines are unusually low, often subnormal, and do not show much oscillation."[b]

It will be seen from this brief analysis of the more prominent symptoms—apart from *focalising* symptoms, which are unfortunately only rarely present, but then shine out as beacon lights in the darkness—that in the majority of instances we must depend on the history of the case, the seat of origin of the disease, and the steps of its progress, to enable us to arrive at any conclusion approaching definiteness; while in a very large proportion of cases nothing but an exploratory operation affords a chance of making a diagnosis or of saving the patient's life. This is put very forcibly by Mr. Barker in summing up the question of diagnosis. "Those who have the largest experience of these cases," he writes, "will be the first to admit that the difficulties surrounding the differential diagnosis are very great. . . . For my own part, although I have watched the clinical course of a considerable number of such cases in all their varieties closely, I believe we are more likely to form an accurate estimate of the nature of the affections from a careful study of the primary condition in the temporal bone from which they spring, and from a knowledge of their general pathology as noted in the *post mortem* room, than from any special symptom we may observe at the bedside. Moreover, do what we will, the uncertainty in any given case will always be so great that nothing but an exploratory operation will clear it up."

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[a] See the case of cerebellar abscess reported by Messrs. Milligan and Hare, Brit. Med. Journal, Feb. 1, 1890, Vol. I., p. 231, and referred to subsequently.

[b] Compare with these the *composite* charts arrived at by a study of uncomplicated cases. Illust. Med. News, July 27, 1889.

Treatment.—In all these complications of old-standing otitis media, medical treatment can neither alleviate nor cure. As cases which are "left to themselves" or "to nature," after the occurrence of complications, invariably terminate fatally, by delaying operation we only diminish the chances of a successful result. In no branch of surgery is it more certain that delay means death. But most important by far is the prevention of the occurrence of such complications—a possibility, I venture to think, not sufficiently insisted on. From the careful analysis of tables of ear disease published by specialists such as Bürkner and Bezold, and the records of the Middlesex, University College, and Ormond-street Children's Hospitals—the three latter alone forming a total of 71,950 cases—Mr. Barker found that the deaths from middle-ear disease amounted to 1·2 per cent. in Bürkner's cases; 0·9 per cent. in Bezold's; while his own mortality he fixes at 2·5 per cent.; and out of this enormous number of cases collected from the three hospitals only 45 deaths were recorded as due to sequelæ of ear disease. Reassuring as these figures seem at first sight, it must be remembered that in the majority of cases these patients are treated in out-patient departments, and that after a longer or shorter period of attendance they are lost sight of, and their subsequent history remains unknown. But even apart from this, these figures are a reproach to the medical art when viewed in the light of recent advances in other branches; and it is unfortunately too common both for medical men and parents to neglect a discharge from the ear as a thing of little consequence, and to only apply treatment intermittently when it assumes disagreeable proportions. A lull in the external appearances is too often used as a pretext for the cessation of treatment, when in reality it may only evidence the storm that is brewing within. I say deliberately and without fear of contradiction, that every case of otitis media which has not yielded to treatment by antiseptic injections, insufflations, &c., within a year from its beginning, should be treated by free opening up of the mastoid antrum and the establishment thereby of thorough means of irrigation and drainage; and, if that should not prove sufficient, by exposure of the dura mater both above the tympanum and in the neighbourhood of the lateral sinus—the commonest seats in which to find extra-dural abscess in an early stage. With our improved means of rendering septic cavities aseptic; with the fear of exposing and exploring the dura mater a thing of the past; and with thorough mastoid drainage in chronic ear disease, a recognised and ordinary mode of treatment—still fewer cases in the future should be allowed to fall victims to intracranial complications. The "bogey" of the lateral sinus, who is yet a living reality, must be laid to rest with his peritoneal brother, now a thing of dust. For just as surely as vaccination has annihilated, or at least rendered powerless to kill, the formerly much-dreaded small-pox, so improved treatment in the directions indicated, combined with an increased sense of responsibility and greater caution on the part of those entrusted with the care of the young, and on the part of physicians, during the progress of those diseases which are most liable to set the ear-mischief agoing, should, combined, completely banish the majority of these fatal complications; and it is surely, in the light of our present knowledge, no vain hope to look forward to the speedy advent of the time when they will be regarded as curiosities of medical malpraxis.

When a case has passed the initial stage, and secondary symptoms are beginning to manifest themselves, if no radical treatment has been already applied, the mastoid antrum should be fully opened up by trephining or gouging, and the effects of free drainage by this opening should first be tried. Should no benefit result, the dura mater should be exposed by cautiously chiselling away the overlying layer of bone; and if the mastoid antrum has been previously opened at a point just above and behind the external auditory meatus this can easily be done, and the dura mater overlying the tympanic cavity examined at its reflection on to the squamous bone. Should no extra-dural abscess be found, the lateral sinus is here in immediate proximity, and, if not already exposed, may be easily examined for the presence of septic phlebitis or thrombosis. In those skulls in which the lateral sinus forms the genu described above, it will have been already exposed in the preliminary trephining. In the absence of any indications of disease in these, the most common sites, we have then to deal with a case in which the complication exists inside the dura mater, and must be dealt with accordingly. A further advantage is derived from the opening being made in this position, inasmuch as the temporo-sphenoidal lobe can be fully explored through it, as well as the cerebellum, by passing a fine trocar through the tentorium into the lateral lobe. Such a proceeding was adopted in a case recently published by Mr. Milligan and Professor Hare, of Manchester, in which all localising symptoms were wanting, and pus being found in the cerebellum the original opening was closed, and the occipital bone trephined below the superior curved line, and about three drachms of intensely fœtid pus removed. The case, unfortunately, terminated fatally, death resulting from interference with the respiratory centres, Cheyne-Stokes' respiration being a marked symptom which came on nineteen hours after the operation, and persisted until death took place a few hours later.

It is only within the last year or two that the treatment of thrombosis of the lateral sinus has been brought within the range of surgical practicability. As far as I can find, the suggestion for operative treatment originated with Mr. Victor Horsley, the pioneer in so many brilliant successes in brain surgery. In reporting to the Clinical Society[a] a case of recovery after trephining for mastoid suppuration, he referred to the fact that there had been evidences of septic embolism of the heart and left lung, and that most probably thrombosis of the right lateral sinus existed; and suggested that in future cases, as soon as the first indications of embolism appeared, the internal jugular vein should be exposed and ligatured in the middle third of the neck, so as to cut off from the general system the focus of septic dissemination. This treatment was carried out by Mr. Lane in a patient of Dr. Perry's in Guy's Hospital in August, 1888. The boy, aged ten, had suffered from otorrhœa for years, and, on admission, earache, tenderness, and œdema were found, followed a week later by rigors and neuritis of the right optic disc. Exploration of the mastoid gave a negative result; and the rigors and pyrexia continuing, two days later the lateral sinus was explored, a mass of foul clot was removed, and the jugular vein was tied. The boy recovered without a symptom, and is now well.[b] This, so far as I know, is the first successful case recorded.

At a recent meeting of the Medical Society of London, on March 31st of this year, Mr. Ballance brought forward four cases in which the lateral sinus had been explored for septic thrombosis, and the jugular vein ligatured. He divided the vein between two ligatures, and having removed as much of the clot as possible, the upper portion of the divided jugular was washed out from its distal extremity with an antiseptic solution. Two of the cases recovered. In his second case death took place a day or two after the operation from pyæmic pneumonia, showing that the operation had been undertaken too late; the brain and membranes were healthy. In this case there had been preceding optic neuritis. In his fourth case, in spite of slight pulmonary and gastro-intestinal signs of infarction, complete success attended the operation, although a second ligature of the internal jugular vein was rendered necessary, as it was found on section that the clot extended below the first ligature. This impossibility of determining the extent of the thrombosis in the jugular vein had previously been admitted by Mr. Horsley to be a strong argument against the operation he proposed; but the result of this case shows that it is not a fatal objection. The points on which Mr. Ballance relies to establish the diagnosis are these:—"1. A history of a discharge from the ear; 2. Sudden onset of the disease; 3. Extreme and rapid oscillation of the temperature; 4. Repetition of rigors and vomiting; 5. Optic neuritis and other cerebral symptoms; 6. Swelling and tenderness in the mastoid region, with stiffness of the neck."[a]

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[a] Clin. Soc. Trans. Vol. XIX., p. 290.

[b] Reported by Dr. Newton Pitt. Loc. cit., p. 647.

Dr. Pitt sums up the conclusions at which he has arrived from the study of cases of lateral sinus thrombosis as follows, and I cannot do better than quote them in full:—

"1. The disease more often spreads from the posterior wall of the middle ear than from the mastoid cells.

"2. The otorrhœa is generally, but not always, of some standing.

"3. The onset is sudden, the chief symptoms being pyrexia, rigors, pain in the occipital region and in the neck, associated with a septicæmic condition.

"4. Well-marked optic neuritis may be present.

"5. The appearance of acute local pulmonary mischief, or of distant suppuration, is almost conclusive of thrombosis.

"6. The average duration is about three weeks, and death is generally from pulmonary pyæmia."

There is just one point to which I would refer in connection with exploratory operations, and that is the unnecessarily large size of the opening usually recommended to be made. If a point one and a half inches behind the external auditory meatus along Reid's base line be taken, and a perpendicular erected to it, and the pin of an 8 mm. trephine applied at a point one and a half inches along this, measured from the base line, the whole temporo-sphenoidal lobe and the cerebellum can be explored from this spot, the thinness of the bone allowing of the freest movement of the needle laterally, or downwards through the tentorium cerebelli. In this way all intra-dural collections could be tapped, though, of course, a cerebellar abscess would require further operation. By adopting this smaller opening the risk of hernia cerebri would be diminished; with proper antiseptic precautions this should not occur.

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[a] British Medical Journal, April 5, 1890. Vol. I., p. 783.

I cannot close without performing a pleasant duty. It is to acknowledge, with the fullest gratitude, the invaluable assistance I received from my colleagues, and their unwearied kindness and loyalty throughout; especially are my thanks due to my friend, Mr. Tobin, who was ready and willing to assist in every way and at all hours; and to those also, unconnected with our hospital, who so kindly gave the benefit of their experience and opinion in this difficult and trying case I beg to offer my sincere thanks. I fear I have trespassed at inordinate length on your time; the intense personal interest of the case may perhaps prove a plea for your indulgence. No one regrets more than myself that I have not to record a brilliant triumph of surgical art; but if others can learn anything from my mistakes, or if the points on which I have dwelt may bring forth in discussion any light, however feeble, to illumine the darker recesses of intra-cranial symptomatology, I shall feel more than amply rewarded.

ART. II.—*On the Recent Revival, under New Names, of some Old Fallacies bearing on Medicine.*[a] By THOMAS MORE MADDEN, M.D., F.R.C.S.Ed.; Obstetric Physician to the Mater Misericordiæ Hospital, Dublin; Physician to the Children's Hospital, Temple-street; Examiner under the Conjoint Board of the Royal College of Surgeons and Apothecaries' Hall of Dublin.

A RECURRENCE of waves of epidemic empiricism widely affecting the practice of medicine have been noticed at periodic intervals in every age of the history of our art. Those therapeutic methods, and the theories connected with them in several instances, have been founded on a substructure of truths that outlived the often unconscious exaggerations and delusions with which they were thus intermixed, and so eventually proved serviceable to the progress of medical science. Still more frequently their prevalence, however short-lived, has been no less injurious to the character of the profession than to the interests of the public. To such methods, and to the undue importance ascribed to them, may, I think, be fairly applied the term—perhaps more expressive than elegant—"Fads," recently borrowed from the vocabulary—rich in terse nouns—of our transatlantic cousins. But whatever they may be called, whether it be theories, or delusions, or fads, matters, I think, very little, provided the fact be recognised that these epidemic popular beliefs, affecting medical questions, generally die hard, and, after a period of oblivion, are not unfrequently resuscitated even in a more enlightened age. At the present moment, for instance, we have at least "three Richmonds in the field," wherein, as of yore, medical science and its counterfeits are still in close competition in popular estimation—namely, "Hypnotism," "Massage," and "Faith-healing," and each of these may in some measure be regarded as an illustration of the revivalism referred to. As Lord Bacon has well said—"The river of Lethe runneth as well over as under ground;" and, as we may venture to add, in its course it has undoubtedly swept away not a few of the arts and inventions of our ancestors, which have been again reclaimed as new ideas or improvements in our own time. In like manner with the knowledge of our forefathers, so, too, many of their errors and delusions are from time to time revived.

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[a] Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, May 16, 1890. [For the discussion on this Paper, see p. 80.]

The exemplification of the poet's words—"All novelty is but oblivion," thus afforded by the re-appearance in our own day of the resuscitated theories or the long-buried delusions of our forefathers, is, I think, largely due to that neglect of ancient medical literature which is now unfortunately too commonly characteristic of the followers of what, by courtesy, is still designated a "learned profession." "The mental disease of the present time," says Johnson (and the assertion is surely more applicable to-day than when penned upwards of a century and a half ago), "is impatience of study, contempt of the great masters of ancient wisdom, and a disposition to rely wholly on unassisted genius and natural sagacity. If no use is to be made of the labours of past ages the world must remain always in the infancy of knowledge. The discoveries of every man must terminate in his own advantage, and the studies of every age be employed on questions which the past generation had discussed and determined." Elsewhere I have enlarged on this subject, and have shown that several of our most valued improvements in surgery, obstetrics, and gynæcology—such, for instance, as the employment of anæsthetics before surgical operations, the use of the midwifery forceps, the rapid dilatation of the cervical canal, and the application of endo-uterine therapeutics, are all instances of the revival of ancient and disused practices as modern discoveries and improvements. For as the father of English poetry well expressed it—

> "Out of the olde fieldis, as men saieth,
> Comith all this newe corne fro yere to yere,
> And out of old bokis, in good faieth,
> Comith all this new science that men lere."

Thus the very discussion we are now engaged in was to a large extent, with regard to hypnotism at least, anticipated as far back as the time of Mesmer, more than a century ago. Of the three commonly supposed novel methods of treatment which have been here referred to, as now more or less epidemic in different countries, the first-named—Hypnotism—is obviously a resuscitation, under a more scientific form and name, of the older practice of animal magnetism or of mesmerism. The second, "Massage," is also but a new expression for an old idea—in plain English (a language apparently somewhat out of fashion in modern medical nomenclature), being neither more nor less than the employment of systematic friction, as a mode of cure, of which the utility was known to Hippocrates, and which was in our own country as successfully resorted to by "the Irish Strokers" of the 17th Century, as by the "Masseurs" of the present day. The third and last of the three "fads" above alluded to, and that to which this term is most applicable, cannot, however, be considered in this connection. "Faith-healing," as it is called, is the outcome of a religious belief, and hence, however fanatical or erroneous we may deem its disciples, their principles are not matter for discussion in the pages of a medical journal. Neither hypnotism nor massage, however, is entitled to any such special exemption from discussion or criticism, although in some respects it would appear to me somewhat difficult to treat their pretensions seriously. I willingly admit the sincerity and good faith of those who, having convinced themselves of the value of either or of both these procedures as therapeutic agents, naturally desire to enforce their views thereon for the general adoption of the profession. At the same time I venture to claim for others, who like myself may differ from this conclusion, the right of freely expressing our opinions on questions of such interest as these.

Hypnotism.—Under this term the writers of many of the numerous articles recently published on the subject in the medical as well as in the lay press have apparently confounded together two distinct modifications of what was formerly known as animal magnetism—namely, mesmerism and Braidism. For both is claimed the potentiality of so influencing, by a non-tangible agency, the mental and physical condition of the person operated on, as to induce a state of hypnotism or artificial somnambulism. In the latter of these two varieties of animal magnetism—namely, that associated with the name of the late Dr. Braid, of Manchester, by whom it was described, this purpose was attained by so concentrating the patient's attention on a mirror, or other similar object, as to eventually exhaust sensorial power and produce a trance-like or unconscious condition, in which when obtained, as was proved by Braid, Elliotson, and Esdaile, surgical operations may be painlessly performed. Long before Braid's time, however, similar results were secured by the employment of animal magnetism as an anæsthetic. Thus I have found in the *Lancet* for April, 1827, a very interesting account of one of the earliest instances of this kind, in a case reported by Cloquet, wherein he removed a cancerous breast from a patient thus rendered insensible to the pain of the operation. This case was followed by others, and shortly afterwards was investigated by a committee of the French Academy of Medicine, whose elaborate report was followed by the temporary abandonment of animal magnetism as an anæsthetic agent. The history of its subsequent revival at long intervals by Elliotson and Esdaile, and of its last recrudescence within the past few months, would be beyond the scope of the present communication. There can be no doubt of the possibility of inducing these and other phenomena of Braidism in certain cases, and more especially when dealing with subjects whose powers of volition are weakened by disease, or who are naturally of a hyperæsthetic or distinctly hysterical temperament. The latter class, as I have formerly shown in my memoir on "The Nervous Diseases of Women," is much larger than is commonly recognised, nor is it by any means confined to females, being also widely prevalent amongst men. The expediency or the prudence of attempting to exercise this hypnotic influence on patients, such as those thus most likely to be brought under its dominion, is, however, another question, and one which I would myself unhesitatingly answer in the negative. The objections to hypnotism, apart from the possibility of its abuse, real or pretended, are the uncertainty of its action as compared with other anæsthetic agents, and the permanently injurious effects that would probably be thus induced in the case of a hysterical or hyperæsthetic patient.

There is, however, another class of phenomena that have recently been widely confounded and popularly intermixed with the form of hypnotism or induced somnambulism above referred to, from which they are essentially distinct, and which must, therefore, be here regarded from a wholly different standpoint, though, as I think, with still greater disfavour on every ground, moral and physical. I allude, namely, to those more remarkable alleged powers by which, as has been claimed, the skilled operator in this occult art may at his will and by his mental suggestion or the induction of a subtle nerve force, somewhat akin to its supposed action to the magnetic influence, control the thoughts and acts of the hypnotised subject, and even thus modify the course or arrest the progress of disease. These—although, as just said, very commonly confounded with Braidism—are obviously traceable to the older illusions of animal magnetism or of mesmerism, of which they are substantially the resuscitation in a new guise. Animal magnetism, or, in other words, hypnotism, has been defined as a reciprocal influence, supposed to exist between certain individuals, which is brought into action by the will on the one side and by a peculiar susceptibility on the other. This influence, we are told by the initiated, consists in a peculiar subtle fluid or force transmissible, under certain conditions, from one individual to another by the volition of the operator whose suggestion may or may not be expressed by an outward sign or act. As far back as the time of Van Helmont we find the supposed powers of animal magnetism referred to in jargon little different from that employed by some of the hypnotisers of the present day—"Magnetism is a universal agent which penetrates all matter and agitates the mass of the universe. We can attach to a body the virtues which we possess, communicate to it certain powers, and use it as the means to operate salutary effects. . . . There exists in man a certain enérgy which can act beyond his own person, according to his will or his imagination, and impart virtues and exercise a durable power even in distant objects. Will is the first of powers."[a]

The real marvel connected with such assertions appears to me to be the fact that at the present day some men, of whose sincerity and sanity there is no question, should claim these powers, and that others, similarly circumstanced, should admit the possibility of thus influencing any persons, save those of abnormal, nervous, or mental constitution, and more especially the oftentimes semi-insane victims of hysteria.

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[a] Johannis Baptistæ Van Helmont Opera Omnia, p. 236. Frankfurte, 1707.

À priori, it might well seem incredible that pretensions of this kind should be gravely advanced and accepted on the eve of the last decade of the 19th century were it not that this age, too often sceptical of the truths of Divine Revelation, has afforded so many illustrations of its credulity in the illusions of pseudo-scientific enthusiasm, and that at the present time we have abundant contemporaneous evidence of a wide-spread credence in the alleged and incomprehensible powers of animal magnetism as reported under the name of Hypnotism. It would be needless here to multiply the proofs of this belief which might be adduced from recent periodical literature. One will suffice for our present purpose—namely, the circumstance that within the past month it has been found necessary in France, by the Minister of Marine, M. Barbey, to issue an official prohibition of the further practice of hypnotism in the navy under any pretext, by an order addressed to all Admirals now holding command in the French Service. To deny *in toto* the possibility of phenomena, to the actuality of which so many witnesses have testified, merely because they are apparently utterly at variance with common sense and wholly inexplicable in the present state of our knowledge, might perhaps be thought unphilosophical. Hence, whatever our own opinion may be on the subject, we must be content to leave its final decision for the eventual judgment founded on the better knowledge and experience of the profession. Whatever that verdict may be, it cannot be very long delayed. Nevertheless, the countenance recently given by certain medical authorities to the revival of hypnotism has given a stimulus and apparent support to some popular extensions or perversions of these practices which they never could have intended, and which are much to be deprecated. This is, I think, sufficiently exemplified in a recent article in the *Hospital Gazette*, the able editor of which—to his credit—has been a consistent and outspoken opponent of the attempted resuscitation of hypnotism in medical practice. That criticism may be here briefly cited—"The article on hypnotism, in the present number of the *Universal Review*, is a terrible example of the adumbrating effect of dabbling in pseudo-occultism and mystic lore. Mrs. Besant opens her paper with an allusion to a body calling itself the 'London Hypnotic Society,' which, she says, was founded for the systematic study and use of hypnotism. We were present at the first meeting of this body, and would remind Mrs. Besant that the 'systematic study and use' of that elusive agency, known as 'Odilic Force' to the initiated—*Anglicé* 'Animal Magnetism'—was also contemplated. We recollect the lecturer on that occasion, in alluding to this mysterious influence, spoke of it as streaming from the eyes, the extremities of the digits, and the toes of the operator, and, if we mistake not, the tip of the olfactory organ was also said to be a medium through which the accomplished magnetiser distributed some of his superfluous nervous energy." The painful exhibitions of so-called hypnotic influence, described in recently published reports of certain proceedings on the Continent, as well as the spectacles of either fanatical enthusiasm, or else of charlatanism acting on acquiescent imbecility, which I have myself on several occasions witnessed in the performances of some professors of animal magnetism, can hardly be spoken of from my point of view save in terms that might perhaps be deemed offensive by those who are believers in these powers. Hence I forbear any further reference to them, for, as the learned Fuller long since observed, "I meddle not with those Bedlam phancies, all whose conceits are antiques, but leave them for the physician to purge with hellebore." [b]

Massage.—Having referred so fully to the resuscitation of animal magnetism in the preceding observations on hypnotism, space precludes any lengthened notice here of the second of the recent revivals, which, in their epidemic or popular form, may be classed amongst the "fads of the present day." Old facts cannot be metamorphosed into new discoveries by the simple process of re-naming them. The cure of disease by a systematic course of rubbing, or, as it is now called, "massage," is an idea coeval with Hippocrates, by whom it was recommended. Celsus informs us that Asclepiades by friction could calm a frenzy; and further states that when these frictions were carried to too great an extent, they brought on a lethargic state. A. Cornelius Celsus recommended manual frictions for the cure of pleurisy, lethargy, and various other maladies, describing the manner in which they are to be conducted. For instance, in epilepsy, he says that the head and forehead are to be chafed, then the hand is to be

[b] The Holy War. By Thos. Fuller, B.D., p. 187. London, 1645.

carried gently over the neck and bosom; at other times the extremities of the hands and feet are to be grasped, that "we may cure by the very act of holding the limb." Hence the popular idea apparently fostered by some persons that massage is a new procedure must be included in that category of ill-appreciated teachings of which we have a typical example in the case of the ingenious youth who desired to impart to his aged grand-maternal relative the occult art of extracting the ovuline constituents from their shell.

Within the past two or three years, however, the attempts to introduce this supposed new method into general favour have been most successful, at least if the number of its practitioners affords any criterion of the popular demand for their service. We now find massage developed into a distinct specialism, with a name as high-sounding, pretensions as extensive, and followers as numerous, as some of the other specialisms of modern medical practice. This is sufficiently shown by the advertising columns of the daily press, medical and lay, in which may be read the announcements of the countless array of professors of massage, male and female, who thus proffer their "certificated" readiness to rub away, for a small consideration, many, if not "all the ills that flesh is heir to." I shall not presume to discuss the value of this procedure, which we all know to be useful in certain cases. For aught I can here say, the "masseur or masseuse" may be able or be powerless to accomplish all they or their supporters claim. What I, however, would desire now to call attention to is the circumstance that a method of treatment, largely anticipatory of the present practice both of massage and hypnotism, was practised in this country so far back as the days of the Commonwealth, and afterwards during the reign of Charles the Second, with a temporary success, probably not since surpassed. The long-forgotten story of this strange episode in the history of popular or pseudo-medical phantasmata was disinterred nearly half a century ago by my father, the late Dr. R. R. Madden, by whom it was very fully narrated in the second series of the *Dublin Quarterly Journal of Medical Science.*[a] As that history is now generally unknown, and as the journal itself is long since out of print and inaccessible, I may in this connection here briefly recapitulate the circumstances to which he there referred.

The first person in this country who performed cures by stroking patients with the hands is commonly supposed to have been Mr. Valentine Greatrakes, who flourished in the reign of Charles the Second. That supposition, however, is erroneous. A much more remarkable performer of this kind figured in Ireland in the troubled times of the Commonwealth, as well as after the Restoration. An account of his "wonder-working practices" exists.

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[a] The Mesmerists of Ireland of the Seventeenth Century. By Richard Robert Madden, M.D., M.R.I.A. Dublin Quarterly Journal of Medical Science. Vol. IV. 1847. Page 254.

"In the following notice of it," says Dr. R. R. Madden, "some interesting particulars and remarkable statements of facts, in relation to practices analogous to those of modern animal magnetisers, will be laid before the reader; and it is for him to make his own deductions from them.

"Those who set about building up systems before they have collected sufficient materials for the projected structure begin at the wrong end of their undertaking; and perhaps the disposition to demolish everything newly raised, from a fear of novelty that exaggerates defects, may lead to the untimely end of beginnings that might, possibly, have grown into something good or useful, had the work proceeded. In things that are strange and new, every failure is accounted by some a proof of imposture, and in others a great number of failures do not excite any suspicion of the power or probity of the performer."

Before entering on the subject of the first wonder-working, non-professional practiser of the healing art I have referred to, the principal circumstances that are known of Greatrakes require to be briefly noticed. He was born in 1628, at Affane, in the County of Waterford; educated in the free school of Lismore; and "perfected his studies in Humanity and Divinity in England," in the house of his maternal uncle. The breaking out of the Rebellion had caused the flight of his family, and the embarrassments of the latter led to his return to his native land. Afflicted at the deplorable state of the country, and disgusted with the unnatural differences then existing, he retired from the scene of strife, and sought seclusion in the Castle of Cappoquin. "There," he says, "I spent a year's time in contemplation, and saw so much of the madness of the world, that my life became a burden to me, and my soul was as weary of this habitation of clay as ever a galley-slave was weary of his oar." In 1649 he obtained a commission in Lord Broghill's regiment, then on service in Munster, and in 1656, when a part of the army was disbanded, he retired to his estate at Affane, and shortly after was appointed a Justice of the Peace. About 1662, when he was thirty-four years of age, he says he had "an impulse, or a strange persuasion in his mind (of which he was unable to give any rational account to another), which did frequently suggest to him that there was bestowed on him the gift of curing the King's Evil." This conviction he concealed for some time, but at length communicated it to his wife, who endeavoured to persuade him it was "some strange imagination"; whereupon he made his first experiment in her presence on a youth afflicted with the evil, "grievously in the eyes, cheek, and throat." "Then I laid my hands on the places affected, and prayed to God to heal him, and bid the parent bring the child two or three days afterwards to me again, which accordingly he did, and I saw the eye was almost quite whole and the throat strangely amended, and, to be brief, within a month discharged itself quite, and was perfectly healed, and so continues." He now proceeded on his career of healing by means of prayer and friction, or stroking the affected parts, and his fame extended over the country. In 1665, at the request of the Earl of Orrery, Greatrakes went to England "to try his hand" on the head of Lady Conway of Ragley, in Warwickshire, who had long laboured under some cerebral affection.

He remained at Ragley some weeks, and totally failed in his efforts to cure or relieve that lady, but "several marvellous cures performed in Warwickshire by the stroking of the hands of Mr. Valentine Greatrakes" are related by Dr. Stubbes, a medical practitioner of Stratford-upon-Avon, in a letter containing an attestation of several other cures by "the miraculous Conformist," as the poor Irish gentleman was called, given by Mr. Foxcraft, M.A., Fellow of King's College, Cambridge. In Stubbes's letter he speaks thus of the performances he witnessed, "filling with admiration the most learned and suspicious beholders. He is a man of a graceful personage and presence, and if my phantasy betrayed not my judgment I observed in his eyes and mien a vivacity and sprightliness that is nothing common." The writer proceeds to describe him further as a man of good life and of benevolent principles "seeming to include some grains of the golden age, and to be a relic of those times when piety and miracles were sincere." In his attempts, however, to give a natural solution of most of the cures effected by Greatrakes, he makes mention of his "*long and continued frictions, from one to two and three hours;*" and Dr. Smith, in his "History of Waterford," reminds his readers of Bacon's observation, in his "History of Life and Death," that motion and warmth (of which true friction consists) draw forth into the parts new vigour and conduce much to longevity. "How far the imagination, in those alleged cures, he adds, might contribute to the cure is uncertain."

The fame of Greatrakes reached the Court of Charles II., "who invited him to Whitehall, to exhibit his powers." The Earl of Arlington was the bearer of the King's commands. The merry monarch might have been somewhat jealous of the renown of a successful rival in the practice ef manipulating patients for the cure of scrofula. One of His Majesty's first public acts after the Restoration, Evelyn thus describes:—"July the 6th, 1660, according to custom, His Majesty sitting under his state in the banquetting house, the chirurgeons cause the sick to be brought or led up to the throne, where, they kneeling, the King strokes their faces or cheeks with both hands at once, at which instant a chaplain in his formalities says, 'He put his hands upon them and he healed them.'"

This Evelyn details in his usual quiet manner, and having described the patients getting a piece of money strung on white ribbon put round their necks by his Majesty, he adds, "The chaplain, each time the King put on one of these ribands, repeated, 'That is the true Light Who came into the world.' The Gospel was then read, prayers for the sick offered up, a blessing pronounced, and the King washed his hands after having stroked above six hundred." In the memoirs of Lord Orrery in manuscript, 1669, cited by Harris, Mr. Love states that Greatrakes failed to relieve him of a pectoral and rheumatic disease, but he was witness of his curing the falling sickness, and further that the Royal Society, and other modern philosophers, not able to dispute the fact, found words to define it, and called those strange effects "a sanative contagion in the body, which had an antipathy to some particular diseases, and not to others." In the "Philosophical Transactions," No. 256, p. 332, the celebrated Ralph Thoresby gives several remarkable instances of cures effected by Greatrakes. He mentions the practice adopted by him in the case of his own brother suffering from pain in the head and back, "who obtained immediate ease to his head, by the former only stroking it with his hands; he then fell to rub his back, which he most complained of, but the pain immediately flew from his hand to the right thigh, thence he pursued it to his knee, from thence to his leg, ankle, and foot, and at last to his great toe. As it fell lower it grew more violent; and when in his toe it made him roar out; but upon rubbing it there it vanished."

Some of his failures in England caused a clergyman of the name of Lloyd to write a book against him, entitled "Wonders no Miracles, or Mr. Valentine Greatrakes' gift of healing examined." (London. 4to. 1666). The latter vindicated himself in a publication named "A brief account of V. Greatrakes, and divers strange Cures by him performed; in a letter to the Hon. Robert Boyle, Esq." (London. 4to. 1666). Lloyd's severe reflections on the reputation of the "Miraculous Conformist" seem to have borne down his reputation in England; and on his return to his own country nothing foreign was requisite to bear out in his case the truth of the old adage that "No man is a prophet in his own country."

The last time that any mention is made of him by his contemporaries was in 1681. He was then living in Dublin, but how long he lived after, says Dr. Smith, is uncertain. In 1673, when Peter Walsh, the Franciscan, produced his "History and Vindication of the Irish Remonstrance," Greatrakes appears to have sunk into obscurity. Walsh says that "no sooner had a Catholic wonder-worker made his exit, than Greatrix, an English lay Protestant, started up to supply the former's place, by making people believe he himself, too, had a gift from God to cure all diseases by praying and stroking; even also at London, whither he came at last to cheat the world, as the former was thought to have done. What became of this Greatrakes I neither know nor care; only this, I know that, not long after his practices on folks in London, he went out like the snuff of a candle, just as Finaghty did." Father Walsh, when Procurator of the Franciscans, was called on, in 1666, to lay before the National Congregation assembled in Dublin a detailed account of all he had either heard from others, or by his own experience known, of the far-famed wonder-working priest, Father James O'Finaghty. It is to be borne in mind that Father Walsh had taken a prominent part in the affairs of the Catholic Confederation against the Cardinal Rinuccini and in favour of the Viceroy Ormond, and, by his own admission, Father Finaghty had been of the opposite "Nuncio party" in the late troubles of the nation. Ormond again filling the same office, in 1666, patronised Walsh, who was on very intimate terms with him. After the departure of the latter from Ireland, so little were the tendencies of Father Walsh towards enthusiasm in religious matters, that in England he obtained some Protestant clerical appointment. The first time and place that he heard of the remarkable personage, Father Finaghty, was in London in 1657, during the reign of Cromwell.

In a letter from an Irish Jesuit to one of his Order in London there was an account of one James Finaghty, a secular priest, who formerly had charge of a parish in the Archbishopric of Tuam, apparently raised up by Providence in those times of trouble and calamity to confirm the people in their religion, and for this purpose "gifted with a true miraculous power of dispossessing devils and curing too all sorts of ills and diseases, so that he drew the world after him, and not only Catholics but Protestants, insomuch that he had often a thousand, sometimes fifteen hundred—nay, two or three thousand, who followed him even through bogs, woods, mountains and rocks, and desert places, whithersoever the people heard him to have fled from the persecution of Cromwell's officers and governors, that priests enough could not be had (though many accompanied him on purpose) to hear the Confessions of the great multitude drawn to repentance and resolutions of a new life by the example of his life and wonder of his works, that, therefore, he was esteemed a Thaumaturgus, or wonder-worker of Ireland." Readers who may feel disgusted at accounts of superstitious practices or occurrences in Ireland, and disposed to relinquish all research when these are to be met with in their own country, even in the chronicles of events of two centuries ago, may be reminded of the doings of Mr. Thom, "the New Messiah," and his followers in the vicinity of the principal cathedral town of England within the present age, and may be assured that a great deal more interest attaches to the performances of the Irish Thaumaturgus than does to the phrensied exploits, impious pretensions, and the tragic catastrophe of the great Canterbury prophet, or even to the more recent performances by rival practitioners in the same line that have been witnessed in St. James' Hall, London, or at the Salle des Conferences, Paris, during the past few weeks. There are matters of interest, even in a medical point of view, in the singular effects produced on the imagination, and, as it is alleged, on disease itself, in many instances, by the practices of Finaghty, and notwithstanding his frequent failures, it is a question of more than mere curiosity whether his practices of a curative kind were identical with those of which Mesmer is commonly supposed to have been the originator.

It is certain that practices similar to those of the animal magnetisers were in vogue with the Pagan Irish, and were condemned by Saint Patrick, but, notwithstanding the condemnation, were still observed after Christianity was established. One of the first Irish scholars of this century, the late Mr. Eugene Curry, recognised in a

Pagan practice, called in Irish *Tiamh-Las*, or the "Enlightenment," a performance of a mesmeric kind. The earliest account of this practice was found by that gentleman in an ancient Irish manuscript, where the affairs of Ireland are treated of during the interregnum between the death of Edirsgel More and Conaire More, about the year of our Lord 20. "The evils arising from the delay attending the election of a king after the death of Edirsgel led to a great assembly of the princes and chiefs at Tara, and there it was determined to practise the *Tiamh-Las*. to ascertain the will of heaven respecting the succession. The 'Enlightenment' was accordingly performed in the following manner:—A young man was selected by the Druids—a great number of solemn rites were performed; one of these consisted of breathing on him; and these operations continued till he was put into a deep trance, and while thus entranced he was questioned as to the person who was destined to succeed Edirsgel. He then returned intelligible answers, describing the person spoken of. The young man was kept entranced till the Druids sent to a place some six or seven miles distant, which had been named by the young man, and there they found the person described and sought for, and they forthwith proclaimed him monarch."

In 1662, the Duke of Ormond being again Viceroy, Walsh, on his return to Ireland, heard once more of Father Finaghty working great wonders. He was commissioned, immediately after his arrival in Dublin, by his Grace of Ormond, "to look particularly after Father Finaghty, and see he allured the people no longer, by going about like a mountebank cheating all the nation." Walsh then was appointed not to inquire into the truth or falsehood of Finaghty's pretended powers, but to "see that he allured the people no longer"—so that we are more likely to find in his report what was unfavourable to the pretensions of this man, in the result of his performances, than such things as might seem to give any support to them.

The result of his inquiries was that, in 1662, previous to Ormond's arrival in Ireland, Finaghty had obtained a pass from the authorities "to go freely where he pleased in Ireland," and had gone from province to province, and had drawn after him great multitudes of people, "some expecting to be healed of their infirmities, others, incomparably the greater unmber, to be satisfied in their curiosity;" that he had blessed a great number of wells in various places, and had given them special titles, and, as the people imagined, had given them part of his own supernatural virtue for the cure of diseases; that he had made a triumphant progress through several counties till he came within five miles of Dublin, and was in all places received, reverenced, and entertained, not only by the common people, but by the gentry, nobility, knights, lords, ladies, and clergy also, and by many presented with gifts; that at Cluansillagh, five miles from Dublin, such vast numbers of people of the city and adjacent country thronged about him, that many were almost trodden to death; that from thence he returned to his own country, practising everywhere, as his manner was to practise in the fields amongst great multitudes, dispossessing of devils, from such as he was pleased to judge possessed, and curing too, or at least pretending to cure, all other diseases by prayers, exorcising, stroking, blowing vehemently into the ears of the diseased party; that some Protestants had gone to see him, others of them to get his helping hand, but amongst them many who returned extremely dissatisfied, looking on his feats as impostures, whilst others cried them up as miraculous performances, "and from the former dissatisfied persons the information given to the Lord Lieutenant had proceeded." A Galway man, well acquainted with Finaghty, told Walsh that the former had in his youth been a servant "to one Father Moor, an old venerable Jesuit, and skilful exorcist," from whom he had learned his art and knowledge of exorcising. Subsequently Finaghty, when questioned on this point, denied the assertion. There was no Jesuit on the Irish mission named Moor. There was one named Moor living in Drogheda in 1642 and 1649; he was Superior of his brethren in Galway, then a septuagenarian, a man of great repute in his order.

Walsh could meet with only "two grave Catholic gentlemen—Geoffrey Browne and Richard Bellings of the Kilkenny Confederation—who could speak from their own knowledge of cures effected by Finaghty." These gentlemen were "no bigots." Bellings assured him that Finaghty had "a wonderful gift from God of curing by exorcisms and prayers." Browne told him he had been present when a cripple, well known on the way, who had always been without the power of his lower limbs, going upon all fours, with the aid of two short crutches half a foot high, had been cured in the presence of a great multitude in the following manner:—The cripple being laid down at the feet of Father Finaghty the latter prayed over him, and after some time bid him get up, which the cripple did not, but one of the assistants raised him with difficulty, the cripple crying out vehemently that he was in torture all the time; then he was laid down again, and Finaghty repeated all the former operations, and bid the assistant rise him up once more; the cripple was no sooner raised up than he stood without assistance, walked before all present, gave God thanks, and found himself perfectly cured; and the following Sunday attended a hurling match, "to the extream wonderment of all who had known him before." Mr. Browne, however, "would not determine whether what he saw was a true miracle or no." About a year later Walsh received accounts of Father Finaghty, then in England, performing wonderful cures on both Catholics and Protestants at the Portuguese Ambassador's in London, and at the Queen's at St. James's.

It appears that he was sent for to London to cure the lady of a Portuguese nobleman, then staying with the Queen, who had lost her sight, and "Father Taig M'Eochny," *alias* Captain Power, an Irish Dominican, afterwards Bishop of Clonfert, was sent from the Court for Father Finaghty. The mission was in vain; the attempts of Finaghty to restore sight to the blind Countess proved a failure. Nevertheless, he maintained his credit with his friends, though the jealousy of some minister caused him to decamp from London. He was thence honourably conveyed in a coach drawn by six horses, accompanied by an English Catholic gentleman, through Oxford to Chester and Holyhead. He remained in Wales for some days with Lord Dillon and Mr. Garrett Moore, two great admirers of his, and then returned to Dublin. At Castletown, in the Diocese of Dublin, at Lady Dangan's, Walsh was informed that he had healed a lame man, and given sight to a blind one. But the parish priest of Castletown seemed not thoroughly satisfied of the miracle done here. While at Lady White's, at Leixlip, he restored the sight of a blind man. Yet neither could be said to be perfect cures—"the blind man did not see clearly, nor did the cripple go even then strongly and confidently." Walsh at last met Father Finaghty in Dublin, but previously he found that some Protestant officials "had come to a resolution of bringing Finaghty before the Bishop's Court, for a wizard or an impostor," and that Dr. Loftus interposed, and objected to that proceeding till the Viceroy's return to Dublin. The Roman Catholic clergy had assembled, and discussed the propriety of prohibiting any further practices of his in Dublin. The Franciscans alone continued to countenance him in any way, and a Protestant Irish gentlewoman, they informed Walsh, had been cured of some disease in her limbs. The lady herself also informed him of the same fact.

This was the only cure which Walsh could learn had been effected by him, and he attaches little importance to it. He then gave the result of his own communication with Finaghty, whom he first met at the chapel of Father Aylmer, a secular priest, in Owen's Arch (Audoen's Arch), when the latter was preparing for the altar, and was on his knees when Walsh entered. After visiting him several times he had at length an opportunity of seeing him practise on twenty or thirty poor country people. Their ailments were pains in various parts, weakness of sight, and deafness. One was a boy apparently blind, and another a girl of thirteen or fourteen, who "was troubled with the fairies." He began with prayer and exorcism; these were very short. Having driven the pain, as the patient asserted, from one part to another, he followed it from place to place, praying, until the patient being questioned answered, "Cured." Then he bade the person return thanks to God, kneeling. In this way he proceeded from one to another, but occasionally varying the practice. In some cases he used to blow very long and very strong into the ears of such as complained of deafness or pain in the ear, laying his mouth on the affected ear, blowing so vehemently that, without any miracle at all, it was effectual to work in the organ some alteration. The practice of blowing into the ears of cattle, especially horses, is an old popular arcanum well known to cattle doctors and veterinary practitioners in this country. Finaghty's repeated efforts to restore the sight of the blind boy were unsuccessful. A woman from Crumlin with the child troubled with the fairies next approached, and after praying and exorcising he said that she must be brought to him again.

A few days afterwards, two distinguished gentlemen of the Court, Sir William Petty, the famous physician, and one of the clerks of the Council at Whitehall, Sir Robert Southwell, who had lately been Envoy Extraordinary at the Court of Portugal, came in, unexpectedly, as Walsh states, to examine the sick persons, who were then waiting in town for the trial. Sir William Petty spoke to Father Finaghty in courteous terms, saying, "You may write in my soul what you please as to the way of worshipping God, if you attest that way by plain miracle, remove this wart which you see on my finger and I will presently declare myself of your religion." Finaghty objected to the proposal or to any deductions that might be drawn from its failure if accepted, so it was withdrawn. Sir William then said he laboured under a troublesome infirmity, being nearsighted, and if Father Finaghty would cure him he would humbly and gratefully acknowledge "God's merciful and wonderful hand therein." Father Finaghty rose up and said, "Let us try," then knelt down to pray. He then placed Sir William between him and the light of the window, and said a prayer proper for the eyes. Then he put a Bible in his hand, and asked him could he read it better than formerly. The latter at first thought his sight "mightily amended," but soon finding his error, he told Father Finaghty how it was. The operation was repeated with the same result a second time. Sir William asked Walsh if he knew anything of necromancy, for he knew a book that treated of that science, wherein the prayer used by Finaghty was to be found. The book was then shown to Walsh, for, it strangely appears, Sir William had it in his pocket, and before his departure said he had a proposal to make—let Finaghty assemble in a field a multitude of sick people, as he is wont to do, and he (Sir William) would bind himself in a sum of £100, to be paid in gold to Father Finaghty, to cure by his own practice as many as Finaghty should cure by his. Then he and Sir Robert Southwell went away without so much as saluting or noticing in any way Father Finaghty.

Next day Walsh, by the Viceroy's orders, intimated to him that all was in readiness for the proposed trial. It was evident he never expected the permission of the State would be given for such a trial. He immediately said he could not stay; he must set out for Connaught, as his health had been impared in Dublin, by the labour of mind and body attending his performances; he must go to the country to recruit his health, then he would return, and perform all he promised. A sick man setting out on a long journey on horseback in the depth of winter, seemed somewhat strange to Walsh, who called upon him to write to the Viceroy his reason for abandoning the proposed trial. Finaghty said he was a poor master of the pen, and could not presume to address a Lord Lieutenant. The menaced prosecution in the Bishop's Court was only suspended, and witchcraft was a felony punishable at the stake. Walsh gave him some money for his journey, charged him to make no further attempts at healing or exorcising. Here ends Father Walsh's report to the Lords and Fathers of his order in congregation assembled.

Whether Finaghty, the far-famed wonder-worker, was a mere impostor, a mere fanatic, a compound of both, or a man who performed some cures, which neither a mere fanatic nor a mere impostor could have effected, and whether those cures were made alone by the influence exercised over the imagination, or by practices productive of phenomena (of whatever nature they may be) similar to those produced by mesmeric operations, the reader will determine.

"It may be observed," adds Dr. R. R. Madden, "that practices analogous to those of animal magnetisers, for the cure of diseases, may be traced in many works of antiquity, and the popular modes of cure, by the medicine men amongst some tribes of American Indians, the hakims in the east, the fetish people in Africa, and the handling doctors in some parts of Ireland. The simple practice of handling or stroking with the hand in all probability preceded the use of the magnet for the cure of disease. Lessing very erroneously ascribed to Paracelsus the use of the magnet as a remedial operation. Œlius, who flourished A.D. 500, making mention of it, says:—'We are assured those who have the gout in their hands or feet, or convulsions, find relief when they hold a magnet.'

"Paracelsus, who surpassed all the wonder workers of antiquity, and believers in marvellous scientific practices, even in the possibility of making 'homunculi' by them, particularly eulogised the use of the magnet for the cure of disease: fluxes and hæmorrhages, and various other maladies, he tells us, were curable by magnetic influence. In the fifteenth century Marcellus speaks of the use of the magnet for the cure of tooth-ache; and Leonard Camellus, for the same disorder, speaks of its application to the head. Kircher mentions the use of magnetic beads worn round the neck; and Ambrose Parè speaks of the employment of the magnet in some surgical operations. In 1770, Father Hehl, a Jesuit Professor of Astronomy in Vienna, Beckman states, communicated to Anton Mesmer the wonderful effects produced by magnetised steel plates.

"In 1798 Perkin's magnetic steel tractors obtained a temporary notoriety, but the *modus operandi*, both with Mesmer and Perkins, as far as regards the mere manipulation, imposition of hands, passes or friction, was the old popular practice that has been already referred to—the handling or moving of the hands over the sick—of those operators. in various countries, who professed to cure disease by the combined power of magic and medicine, or superhuman means alone, with the influence, real or supposed, of magnetism superadded to it."

Whether such phenomena in ancient or modern times have any foundation in actuality, it would be difficult as yet to pronounce. "There are more things in heaven and earth, than are dreamt of in our philosophy," and these may be of them.

At any rate, in conclusion of this long article, it may be interesting to bear in mind the success, in one respect at least, that rewarded the original Professor of Animal Magnetism, whose career might possibly be some encouragement to the modern practitioners of hypnotism, and to remind them that upwards of a century ago very similar pretensions were made by Mesmer, whose thesis "On the Influence of the Planets on Human Bodies," was published in Vienna in 1776. Whether Mesmer appropriated the views previously held on this subject by the Viennese astronomer Hehl, as the latter claimed, or not, now matters little. The controversy between the learned Professor of unsavoury name and the reputed father of animal magnetism was a very animated one, and contains some curious matter, to which, I trust, I may possibly be permitted to return in a future communication on the early history of this subject. The result of the discussion was Mesmer's retirement from Vienna to Paris, where, two years later, in 1778, he re-appeared as the then reigning lion of Parisian society, as well as the most successful practitioner of his occult art, from both of which positions his fall was as signal and as rapid as his rise thereto had been. Whilst the brief sunshine of his prosperity lasted, however, Mesmer, who apparently had always a shrewd eye to the main chance. acted on the old adage so successfully, that, within a couple of years, he realised in Paris a fortune of some 340,000 livres, having before the adverse report of the Royal Commission appointed to investigate this question managed to sell the secret of his method for a sum equivalent to £14,000 to the *Société de l'Harmonie.* The modern professor of animal magnetism or hypnotism might well regret the palmy days of the *Vieil Cour.*

ART. III.—*Report on Influenza, and Brief Abstract of Cases treated at the Station Hospital, Arbour Hill, Dublin.* By SURGEON P. H. FOX, A.M.S.; F.R.C.S.I.; L.K.Q.C.P.I., &c.

AN epidemic of influenza broke out amongst the troops of the Dublin Garrison on January 5th, 1890. From the appearance of the disease to its subsidence or disappearance—about a month or five weeks later—I treated 36 or 40 cases, and the result of my observations on the epidemic are as follow:—First, as to the exciting causes, the poison may be a "capsulated coccus;" but I have not got any authentic information on the point, and I do not believe that the microbe peculiar to influenza has been discovered. As to the predisposing causes, there can be no doubt, in my opinion, that the changeable and damp weather which occurred at the time was a real factor in the production of the disease. Besides, the young soldiers were principally attacked, and the epidemic was most prevalent amongst the recruits. Consequently, I believe that low conditions of the system and exposure to fatigue and cold were undoubted predisposing causes. As to the pathological appearances, they were those of catarrh of the mucous membranes—*e.g.*, eyes, nose, mouth, frontal sinuses, bronchial tubes, alimentary canal, &c. The disease always commenced in the head or throat, and rapidly travelled from one or other of these points. As a general rule, the cases were mild and ran a definite course; a few only were complicated with severe pulmonary congestion or œdema, pneumonia and pleuritis. The glands about the neck, including the tonsils, parotids, and sub-maxillary glands, were inflamed in the vast majority of cases. Rheumatism and even erysipelas occurred as complications in some cases; but these were not of a bad type. The invasion in all was sudden, and the course in uncomplicated cases definite—viz., from four to six days. The earliest symptoms were chilliness, lassitude, headache, sore throat, and loss of appetite; these were quickly followed by nausea and vomiting, and, in some cases, diarrhœa. Thirst, prostration, and restlessness occurred in every case, also fever, which averaged from 99° to 100° F. in ordinary mild cases, and in severe and complicated cases 102° to 104° F., the exacerbations occurring in the afternoon. The pulse was more or less accelerated in every case, and the breathing distressed. In cases complicated with affections of the respiratory organs the respirations ran up to 30 or 40 in the minute; the delirium in these cases was of a most restless character, and one man, it was alleged, attempted to commit suicide. The local symptoms in ordinary mild cases were sneezing, running from the eyes and nose, hoarseness, and oppression in breathing, while in severe cases there were, in addition, sore throat, herpes on the lips and face, epistaxis (in a few), bronchial râles all over the chest, and bronchitic expectoration, which in some cases was streaked with blood. In complicated cases the local symptoms depended on the complication which occurred, and which, so far as I could observe, modified the ordinary symptoms of the original disease. As to the *sequelæ*, I have noticed great debility, rheumatism, chronic enlargement of the tonsils, and deafness. With regard to the urine, I found it febrile in every case—that is to say, it was scanty in quantity, and loaded with lithates. I examined the urine for albumen in several cases, but I did not detect any; and in every examination I found chlorides present. The pneumonia met with as a complication was peculiar, inasmuch as it was always of the bronchial or catarrhal type; the dulness was not so well marked as the "femoral" variety found in ordinary cases of pneumonia, and the crepitus was larger and more moist than those of croupous pneumonia. The sputa in these cases always contained blood, and in some cases were very characteristic and "rust-coloured." I noticed nothing very special in the other complications, except that the case which was complicated with erysipelas was preceded by parotitis.

With reference to the infectious nature of the disease, I am bound to say that two of my orderlies were attacked—viz., Private L., M.S.C., and Private B., M.S.C., and also myself. My own attack was of a very mild nature, and did not incapacitate me from performing my duties; but the orderlies were attacked so severely that they were for a few days on the sick list, and confined to their beds. So also the ward-master and others in attendance on the sick suffered; in fact there were few who escaped an attack, whether mild or severe.

As regards treatment, I usually gave a dose of calomel, or other purgative, to clear out the bowels, unless diarrhœa was present; the patient was then put on expectorants and milk or beef-tea diet; stimulants were given if the symptoms indicated their necessity, and quinine when the fever ran high; hot local applications were applied to the throat, and jacket poultices, turpentine, or spongio-piline to the chest.

The following cases may serve to illustrate the symptoms and most of the complications which were met with during the epidemic:—

Case I.—No. 2,703, Private W., 1st Royal Lancaster Regiment, was admitted January 8th, 1890. He complained of sore throat, pain in the head and back, and general malaise; the glands of the neck were enlarged, the tonsils and fauces were red and inflamed, and there were slight bronchitic symptoms; temperature, 100°; pulse, 90. The tonsils, parotids, and sub-maxillary glands continued to increase in size till the sixth day of the disease, when they suddenly commenced to decline. The fever, which remained at 100° F., now also fell to normal, and the patient could swallow much better. On the eighth day of the disease the patient was convalescent, and from this forward progressed most favourably, made a good recovery, and was discharged February 2nd. As regards treatment, steam inhalations and hot poultices were applied to the throat, and the patient got expectorants, and was fed on slops.

Case II.—No. 2,786, Private T., 4th Hussars, was admitted January 8th, 1890, complaining of pain in the head, cough, loss of appetite, thirst, and general malaise; temperature, 101°; pulse, 109; respirations, 40. Tongue coated; bronchitic râles manifest all over the chest. These symptoms persisted till the fourth day of the disease, when the pulse temperature, and respirations suddenly and unexpectedly fell to normal. The pains now disappeared, the cough ceased, the tongue cleaned, the appetite returned, and the patient expressed himself "all right," and asked for a "little more to eat." The great oppression in the breathing was the most prominent symptom in this case. As to treatment, this patient got expectorants and was fed on slops, turpentine liniment was rubbed into the chest, and a jacket of spongio-piline was worn. He made a good and speedy recovery, and was discharged to duty on February 22nd, 1890.

Case III.—No. 2,588, Lance-Corporal T., 1st Royal Lancaster Regiment, was admitted January 13th, 1890, complaining of aching of the back and limbs and pain in the head, and sharp, lancinating pain in the right side of the chest. The tongue was coated; temperature, 103°; pulse, 99; respirations, 20; bronchial râles present all over the chest; there was also some peculiar desquamation and redness of the skin of the face and arms. January 14th, patient spent a restless night, and was somewhat delirous; pulse, 120; temperature, 103·6°; respirations, 32; dulness and crepitation at bases of both lungs; expectoration, however, more bronchitic than pneumonic in character. The delirium, pulse, temperature, and other symptoms continued much the same till the 5th day of the disease, when dulness and some crepitation were still detected at the base of the right lung, but the base of the left was commencing to clear up. The patient was now very restless, and trying to leave his bed. On the seventh day of the disease the patient fell into a sound sleep, and did not awaken for eleven hours. The temperature, respirations, and pulse now became normal. and the rash disappeared from the face. The chest symptoms also vanished, and the patient's convalescence from this date forward was most satisfactory. This patient was fed on milk and beef-tea, and he was given stimulating expectorants; jacket poultices were ordered to be applied round the chest, but as the patient objected to their weight, and kept pulling them off, a jacket of spongio-piline was used instead.

Case IV.—No. 2,778, Private G., 4th Hussars, while in hospital with eczema, got an attack of influenza on January 6th, 1890. A very special symptom in this case was violent rheumatic pains in all the larger joints.

The patient was treated with salicylate of sodium, made a very good recovery, and was discharged to duty February 1st, 1890.

Case V.—2,303, Private M'N., 1st Royal Scots Fusiliers. Complained of pain, loss of appetite, and great prostration, on admission; temperature, 103°; pulse, 120; respirations, 32. Expectoration streaked with blood; tongue furred; bowels irregular; pupils widely dilated; slight dulness and large crepitation at base of right lung. These symptoms persisted till the fifth day of the disease, when the temperature came down to 99° F.; pulse, 76; respirations, 18. The bowels, which were somewhat loose on admission, became quite regular; tongue clean. From this forward the patient continued to convalesce most favourably; the chest symptoms disappeared, and the pulse and temperature remained normal. This man got milk diet; and liniment of turpentine, spongio-piline, and expectorants were also employed in this case.

Case VI.—No. 2,776, Private C., 4th Hussars, was admitted January 6th, 1890, complaining of the usual symptoms of influenza—viz., pain in the head, loss of appetite, sore throat, and cough. There was, however, one special symptom in this case—viz., a rash, consisting of red, slightly elevated pimples, which appeared on the legs and arms on the second day of the disease. The patient made a very good recovery, the disease having run a very mild course, and was discharged to duty February 2nd, 1890.

Case VII.—No. 2,500, Private W., aged twenty, 1st Royal Lancaster Regiment, was admitted with syphilis, but soon developed symptoms of influenza, which were as follows:—Chilliness, sore throat, pain in the head, and loss of appetite, and slight cough. These were followed by fever; and on January 23rd, 1890, the temperature was 104°; pulse, 84; and respirations normal. There was now general efflorescence of the fauces, enlargement of the tonsils, parotid, and other glands about the neck and throat; herpes broke out on the lips and face, and the pupils were widely dilated. January 26th, parotid very much enlarged and painful; tongue furred; pulse, 120; temperature, 101·4°. January 28th, a blush of erysipelas formed on left cheek; temperature, 102°; pulse, 100. Next day the erysipelas had extended to the nose and right side of the face, and the left eye was closed up; pulse, 100; temperature, 104°; the patient took his food and medicine well. The symptoms remained much the same, with some variation in the pulse and temperature, till February 2nd, when the pulse and temperature fell to normal, and the swelling of the face went down very considerably. The urine was examined in this case—sp. gr. 1020; no albumen present, and no indication of renal disease detected. The patient is still in hospital, and is convalescing very favourably. As regards treatment, he had quinine and expectorants when the first symptoms of influenza appeared; but directly the erysipelas appeared he was isolated, and a special orderly was placed over him, and the usual sanitary precautions were enforced. The patient was fed on milk and beef-tea, and he got port wine and iron. The face was dusted over with flour and enveloped in cotton wool.

CASE VIII.—No. 1,524, Private T., aged twenty-two, 1st Royal Lancaster Regiment. Admitted January 23rd, complaining of pain in the head and back, chilliness, sore throat, difficulty in swallowing, thirst, loss of appetite, &c. On examination, I found enlargement of the tonsils, swelling of the sub-maxillary glands, congestion of the fauces, and bronchitic râles all over the chest; pulse, 134; temperature, 103° F.; respirations, 28. I ordered him steam inhalations, hot linseed poultices to his throat, and placed him on milk diet and an expectorant mixture. On the sixth day of the disease the temperature and pulse were normal, and the throat and chest symptoms were so much improved that the inhalations were discontinued. From this forward the patient continued to improve, and made a very good recovery.

CASE IX.—No. 7,817, Private L., aged twenty-eight, M.S.C., was seized with a cold shivering fit about 3 o'clock, a.m., January 27th, 1890. He complained of great prostration, intense headache, and sore throat. There was some nausea and vomiting and foul tongue; pulse, 112; temperature, 101·4°; respirations, 18; bronchitic râles all over the chest; throat red and inflamed; parotids enlarged and painful; tonsils swollen; spnta frothy and bronchitic in character. He was ordered a jacket of spongio-piline, and liniment of turpentine was rubbed into the chest; flannel was rolled round the throat, and the patient was ordered a cough mixture and milk diet. As he was very restless during the night he got a draught containing chloral and bromide of potassium; and next day, as the glands of the neck were more painful, steam inhalations and hot fomentations were employed. On the third day of the disease the pulse and temperature were normal, but a rash of a herpetic nature broke out on the lips and nose. In every other respect the patient was better. The patient made a good recovery, and was discharged to duty February 1st, 1890.

CASE X.—No. 2,645, Private M., aged twenty-three, 1st Royal Lancaster Regiment, was admitted January 5th, 1890, suffering from influenza. On admission, the symptoms were—headache and pains in the limbs; bronchial catarrh and cough; running from the eyes and nose; furred tongue; nausea and diarrhœa; great prostration, and general malaise; temperature, 104°; pulse, 120; respirations, 20. January 8th, patient passed a restless night, and suffered from delirium; pulse, 122; temperature, 102·6°; respirations, 20. January 9th, patient very delirious, and trying to leave his bed; pulse, 120; temperature, 103·8°; respirations, 32; bronchial râles all over the chest; sputa bronchitic in character, and streaked with blood. At the bases of both lungs, but particularly beneath the blade of the right scapula, a peculiar crepitus was found, and it was evident that catarrhal pneumonia was developing in these regions. January 10th, delirium still present; pulse, 140; temperature, 104·4°; respirations, 40; tongue dry and coated; urine voided involuntarily. January 11th, patient had an indifferent night, and, at 9 o'clock, p.m., became so collapsed that his death was expected; pulse, 144; temperature, 103·6°; respirations, 38. Urine examined—sp. gr. 1010; no albumen; chlorides present in abundance. A patient in the ward stated that this man was a heavy drinker. His delirium was peculiar inasmuch as he fancied he saw flies "as large as donkeys." The patient became worse during the day; sordes had collected on the teeth; the delirium became low and muttering, the countenance livid; the pulse quick, weak, compressible, and difficult to count; the respirations shallow and gasping; and death occurred slowly from exhaustion at 4 45 o'clock, a.m., January 12th, 1890. As regards treatment, this patient had at first quinine and expectorants, and turpentine was rubbed into the chest, and a jacket of spongio-piline was worn; the delirium was met with chloral and bromide of potasssium; when the pneumonia symptoms occurred poultices were applied; and the patient got a liberal amount of milk, beef-tea, and brandy. I made a *post-mortem* examination twenty-eight hours after death, and the most noteworthy appearances found were:—Old fibrous adhesions of the right pleura, the result of pre-existing disease. The right lung was solid, tense, and inelastic, weight 2½ lbs, grey and red hepatisations present. The base of this lung was easily torn and pulpy, and puriform matter exuded on section. Red hepatisation was present at base of left lung. Heart enlarged, weight 14 ozs. Liver cirrhosed and congested, weight 5 lbs. Both kidneys highly congested, otherwise healthy. The other organs had a healthy appearance.

ART. IV.—*Single Unilateral (Sigmoid) Kidney.*[a] By AMBROSE BIRMINGHAM, M.B.

SIGMOID kidney is to be looked upon, owing to its rarity, rather as an anatomical curiosity than as an anomaly likely to come under the notice of the operating surgeon. Nevertheless, since the kidney has come in recent days so thoroughly within the treatment of the surgeon, and since its ablation is now-a-days a frequent event, all anomalies of the organ have gained in interest, and particularly those conditions in which there is but one separate kidney present.

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[a] Read before the Section of Anatomy and Physiology in the Royal Academy of Medicine in Ireland, on Friday, January 3rd, 1890.

Single kidney may be due to three different causes :—

(1) Congenital absence of one kidney.

(2) Atrophy of one kidney.

(3) Fusion of the two kidneys.

The fusion of the two kidneys may take place to varying extents. According to the degree to which union has taken place we recognise three varieties of this condition. If the fusion be complete the result is a "disc-shaped kidney." On the other hand, if the union be slight, and only between the lower extremities of the two organs, there is formed a "horseshoe kidney." Intermediate between these two, in the degree of fusion, stands "sigmoid kidney."

Disc-shaped kidney is placed in the middle line. Horseshoe kidney has one limb of the shoe on each side of the vertebral column, and the connecting band between the lower ends of the two running across the middle line. In sigmoid kidney there is an entirely different condition of things, for here one kidney (the right usually) is transferred to the opposite side of the middle line, where it is joined on to the lower and inner part of the left organ; it is thus a form of unilateral kidney.

As to the frequency of these conditions, I have come across only records of two cases of sigmoid kidney—one by Dr. Coupland (*Guy's Hospital Reports*), the other by Dr. G. Broesike (*Virchow's Archives*, November, 1884), both quoted by Mr. Morris in his excellent work on "The Surgery of the Kidney." Mr. Morris also tabulates the *post-mortems* of several London hospitals, with the following results:—In 14,318 cases examined there were found 9 horseshoe, but only 1 fused (sigmoid?) kidney.

During the winter I met a well-marked case of sigmoid kidney in a subject undergoing dissection; I had it carefully dissected. The following is the condition of the parts made out:—The left kidney was nearly normal in size and position; it measured 3¼ inches in length and 2 inches in breadth; it extended from the upper part of the twelfth dorsal vertebra to the upper part of the third lumbar. The left supra-renal body bore the usual relation to its kidney. The hilum was a large, irregular oval depression on the anterior surface, thus complying with the rule that, when fusion of the two kidneys takes place the hilum has a tendency to turn on to the anterior surface; the more complete the fusion the more markedly does the hilum come forward. One artery, with the origin of a normal renal, broke up into branches rather earlier than usual, and entered the hilum; three veins made their exit from it; these united about 1½ inches from the hilum to form a normal renal vein. At the hilum the vein lay most anteriorly, the artery intermediately, and the ureter posteriorly, as usual. The ureter ran down in front of the lower portion of its kidney, along the outer part of a slight groove which indicated the junction of the two kidneys.

The lower kidney, which we must regard as the displaced right organ, was joined by its upper end to the lower and inner part of the left; a slight groove on the anterior surface of the fused mass and a notch at either border indicated pretty clearly the line along which the fusion took place. This right kidney inclined downwards and towards the mesial line, extending from the lower border of the second to the disc between the fourth and fifth lumbar vertebræ, and approaching the aorta near its bifurcation; thus, the mass was remotely sigmoid-shaped.

The hilum was circular, 1½ inches in diameter, and placed on the right side of the anterior surface. The ureter came out of the hilum in front of the blood-vessels as three branches, which united ¾ inch below the lower end of the kidney. The vein was single and small; it passed out of the centre of the hilum. The arteries were three in number—one came from the inner side of the *right* common iliac, a short distance from the bifurcation of the aorta, it crossed the left common iliac, reached the hilum, ran along its lower margin, and then turned up by its left lip, approaching a similarly disposed branch of the highest of the three renal arteries; together they encircled the hilum, except at its inner part. The second artery arose from the aorta 1½ inches above its bifurcation, and ran to the posterior aspect of the lower end of the organ. The third, and largest, artery arose from the aorta ½ inch above the last; it gave off a few branches to the inner border, but the greater part ran round the upper and outer margins of the hilum, approaching the similary disposed branch from the common iliac previously described, and giving off branches on its way which penetrated the substance of the kidney.

The left ureter, as already pointed out, passed down in front of the lower end of its kidney, and then ran a normal course to the bladder. The lower or right ureter came out of the middle of its pelvis, passed down in front of its kidney, over the left common iliac artery, crossed the middle line at the upper part of the pelvis, running nearly parallel to the right common iliac, and thus reached a normal termination at the right side of the base of the bladder.

The left supra-renal capsule was normally placed; the right lay against the right crus of the diaphragm at the usual level, and did not seem to be affected in the slightest degree by the absence of the corresponding kidney.

The generally received opinion as to the production of fused kidney is, I think, that each kidney is developed separately to a certain point, then the two come into contact for some unaccountable reason, and the lobules of the two unite. According to another view the organ is developed as one single mass, and at no time are the two kidneys separate.

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There are a few points of peculiarity in the above case. First, the blood supply of the lower division of the mass—the right kidney—one of its arteries came from the right common iliac, and appeared to be dragged across from the right to the left side. Secondly, its ureter left the hilum in front of the vessels contrary to the usual arrangement. Lastly, the position of the hilum was that of the hilum of a right kidney reversed—namely, the hilum was near the right border instead of the left. These relations suggest a transference of the right kidney (with a rotation on its long axis) from the right to the left side of the vertebral column after its vascular connections had been established. They point decidedly to the first of the two theories mentioned above as the one which accounts for the condition of fused kidney most fully.

REGENERATION OF BONE.

Ernest F. Neve, M.D., from a careful examination of regenerating bone after subperiosteal resection, says (*Edinburgh Medical Journal*, February, 1890) that "close investigation seems to show that, in some instances at any rate, cartilage cells become ossified *in situ* and transformed into active bone cells without any antecedent freeing and discharge of their nuclei to form osteoplastic cells.

PTOMAÏN POISONING.

Dr. Marsh (*New York Med. Journal*, Nov. 9, 1889) says:—"It seems to me that future investigation will show that the contraction of the circular fibres of the colon, and the peculiar translucency of the intestines, together with hepatic infarction, constitutes true pathological evidence of ptomaïn poisoning.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Diagnosis; the Bacteriological, Chemical, and Microscopical Evidence of Disease. By DR. RUDOLF V. JAKSCH, Professor of Special Pathology and Therapeutics, and Director of the Medical Clinic, in the German University of Prague. Translated from the Second German Edition by JAMES CAGNEY, M.A., M.D. With an Appendix by WILLIAM STIRLING, M.D., Sc.D. London: Charles Griffin & Co. 1890. 8vo. Pp. 398.

IT will be observed from the title of this work that it does not cover the whole ground of clinical diagnosis. The great subject of Physical Examination is left untouched in its pages, which are devoted to the evidence of disease afforded by bacteriological, chemical, and microscopical investigations. In a word, Professor von Jaksch has, with infinite pains and no little success, supplemented such a standard work, for example, as Dr. Paul Guttmann's *Handbook of Physical Diagnosis*, which was translated for the New Sydenham Society, in 1879, by Dr. Alex. Napier. The design of Dr. Guttmann's handbook was to present a concise description of the various methods pursued in the clinical examination of the thoracic and abdominal organs in health and disease, and an estimate of the diagnostic value of the results so obtained.

The decade which has passed since the third edition of Dr. Guttmann's work appeared in an English dress has been eventful beyond all precedent in the progress of scientific medicine by leaps and bounds. It is no exaggeration to say that Professor von Jaksch could not have written his book in 1879. Bacteriological research was then still in its infancy; the method of staining microscopical preparations had only recently been discovered; and the art of making pure cultivations of micro-organisms was but developing into a science.

However, the time came, and with it the man; and the result is the production of a work on Clinical Diagnosis, which has already become classical in Germany, and which is destined to earn a great reputation in English-speaking countries also.

The book in its English dress consists of ten chapters, and a valuable appendix from the pen of Dr. William Stirling, Brackenbury Professor of Physiology and Histology in the Owens College, and Professor in the Victoria University, Manchester. There are appended a very full bibliography and a carefully compiled index. As to the bibliography, we are sorry that the numbers which refer to it do not run consecutively through the book, instead of begining afresh with 1, 2, 3, &c, in the case of each of the ten chapters. This must lead to a certain difficulty in reference, if not to actual confusion. It might, perhaps, have been better to insert the corresponding portion of the bibliography at the end of each chapter than to postpone the entire bibliography to the close of the volume, as the translator has elected to do. The topics discussed in the ten chapters are severally—the blood, the buccal secretion, the nasal secretion, the sputum, the gastric juice and vomit, the fæces, including an examination of the meconium, the examination of the urine; investigation of exudations, transudations, and cystic fluids; the secretions of the genital organs, and methods of bacteriological research. In most instances the naked-eye appearances are first described, and then the microscopical and chemical characters. The letterpress throughout the book is illustrated by a series of beautiful coloured drawings and figures, numbering no less than 134; and we must award a tribute of praise to the publishers, Messrs. Charles Griffin & Co., for the splendid way in which they have brought out the book. Neither trouble nor expense has been spared by that firm in doing justice to the work of the author and of his translator.

There is little to criticise adversely in this book. "Anchylostoma" (at pages 111 and 150) and "anchylostomiasis" in the index are incorrect spellings of "ankylostoma" and "ankylostomiasis." At page 74 also we find "leptothrices," which should, in its Greek dress, be "leptotriches," or, in its English form, "leptothrixes." In the classification of micro-organisms, on page 26, into "Moulds, Yeasts (Saccharomycetes), and Fission-Fungi (Schizomycetes, Bacteria)," it is not easy to understand why Moulds should be deprived of their scientific title—"Hyphomycetes." Lastly, "chalicosis" should be mentioned on page 92 as being synonymous with "mason's lung," especially as the other varieties of "pneumo-coniosis" are called "anthracosis of the lungs" and "siderosis pulmonum" respectively.

Such minor defects as these, however, should not, and will not, detract from the intrinsic merits of a work which reflects the greatest credit on the learning and research of the author, as well as on the linguistic accomplishments and literary talent of the translator.

The Hahnemannian Monthly. Edited by CLARENCE BARTLETT, M.D., and W. B. VAN LENNEP, A.M., M.D. Philadelphia. 1889.

TWO numbers of this periodical have been for some time lying on our table. It is, of course, a homœopathic journal, but there is no heretical taint about the greater part of the contents. In one of the papers we find it laid down most emphatically "that the homœopathic law does not apply to all that comes within the province of the physician, and that it is applicable only to that small part of his duties covered by therapeutics in its narrowest sense." And again:—The "wonderful" law of similars "is applicable to but a very small part of the great field of medicine." We gather, however, that this view is not accepted by all disciples of Hahnemann: and that "in answer to the question as to whether it is ever allowable that a homœopathic physician should resort to purely palliative measures," as, for example, the administration of opiates in malignant disease, "we should receive a very emphatic 'no' from a very respectable number of practitioners, and the answer would be backed by very numerous quotations from the writings of Hahnemann." Careful perusal of the purely therapeutical articles in these numbers does not make us long to abandon "allopathy"—this absolutely meaningless word appears to give your true homœopathist as much comfort as "that blessed word 'Mesopotamia'" afforded to the pious old lady of the well-known story. The complexity of homœopathic therapeutics is well illustrated by one of the papers before us, entitled, "Hæmatemesis—a Repertory." It occupies eleven octavo pages, with a *list* of every possible circumstance and complication of hæmatemesis and the abbreviated titles of the suitable remedies. No ordinary human memory could retain some 360 headings, with from one to a dozen names of drugs attached to each—and all these for hæmatemesis and its accompaniments alone. Take one example. The first "concomitant" is "abdomen bloated," and the choice of a remedy lies among—

"Acon., alum., amm. c., *arg. n.*, *arn.*, *ars.*, *bell.*, bryo., *calc. o.*, canth., *carb. v.*, caust., *china*, cic., nat. m., *coloc.*, con., crotal., cup., *hyos.*, ipec., lach., lob., *lyc.*, *merc.*, nux v., opi., petrol., phos., plumb., *puls.*, rhus, sec., stann., *stram.*, *sulph.*, *verat. alb.*, zinc."

Another illustration of the fearful complexity of this system, and the absurdity of attempting to provide for every possible circumstance in every possible case, leaving nothing to the practitioner's judgment, is afforded by an extract from the *North-Western Journal of Homœopathy*. The following are given as "good indications" in the treatment of some surgical injuries:—

"If I find numbness, concussion, more or less shock, with bruised appearance and little bleeding, *arnica* is the remedy.

"For trivial injury, where there is scarcely anything to be seen, but there is high fever, patient thinks he is most killed, while the whole trouble is a little disturbance of the arterial circulation, the case calls for *aconite*.

"Severe congestion, face flushed more or less, delirium, patient raves about the injury, moans and thinks the moaning relieves him, calls for *belladonna*.

"The *bryonia* patient does not want you to set his bones or dress his wounds; he wants 'to go home' and die; a bad patient for the hospital; breathes as though every breath would be his last.

"The *rhus toxicodendron* patient wants you to do something for him, and not wait to talk about it; is not satisfied; is generally injured about the joints.

"The *hypericum* patient has usually been 'treading on nails,' or tried to stop a runaway, or got drunk, laid out in the gutter to sleep, and the rats have bitten him.

"The *nux vomica* patient is generally hurt about the spinal cord; he feels very sick, and wants you to pull down the blinds, go out of the room, and see if he will not feel better.

"The *ruta* patient has been out in the street, and had a battle with some one who has kicked him on the shins, punched him in the ribs, or pounded his head, but not his face. He has laid out a great deal of strength, and he will tell you nearly every bone in his body is broken.

"The *gelsemium* patient is nervous, exhausted; pulse frequent, soft weak and fluttering; looks at you with the appeal of a drowning man; wants you to raise him up, it will make him feel better.

"The *calendula* patient has cut himself accidentally, or some one has been carving him up. Use it externally.

"The *opium* patient is not there. He has gone to the land of profound slumber. He looks at you, but will not see you. You can dress his wounds, set his bones, and he will scarcely say a word.

"The *sulphuric acid* patient is an old case, and is beyond arnica or ruta.

"The *hepar sulphur* case was hurt last week, and there is an abscess, for which you will be called upon to make a prognosis.

"The *sulphur* case will call for cold stones instead of hot bricks."

In spite of all this therapeutical fooling, this journal contains papers of considerable value. One we must mention, describing a complete dissection and preparation of the cerebro-spinal nervous system, executed by Dr. A. R. Thomas, of Philadelphia. With the exception of the terminal filaments of the intercostal nerves every branch of the system is preserved, and a skeleton unique in character (and ghastly to behold) prepared.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Ninety-first Annual Session, held at Baltimore, Md. April, 1889.

THE association, of whose literary proceedings for one year this volume is a record, is older than the century; but not yet is its natural force abated. The Transactions include, besides the ordinary routine, the President's Address, the Annual Address, three surgical papers, three medical, one on a new obstetrical forceps, four on subjects of materia medica and chemistry, and four other papers in other sections. Besides these there are four "volunteer papers." The annual address was delivered by Dr. W. Asler, Professor of Medicine in the Johns Hopkins University, Baltimore; and its subject is "The Licence to Practice." The state of medical education in the United States, as revealed in this Address and as otherwise well known, is amazing:—

> "In spite of all that has been done, in spite of the agitation which has been so active during the past ten years, the sad truth must be told, that a large percentage of doctors are graduated annually after only two sessions of study. On paper, the two session schools almost universally demand three years, one of which, it is stated, may be with a physician. Now, it is notorious in these schools that a large majority of the men receive the degree at the end of the second college year, and it is just as notorious that not 5 per cent. of the cases in which a preliminary year of study has been passed with a physician is a *boná fide* period of medical instruction. It practically amounts to this, that a man enters without

any fair preliminary test as to elementary education, say on the 1st of October of the present year; and eighteen months from date, or rather seventeen months, some time in March, 1891, he will be let loose upon the commonwealth. Eighteen months in which to master one of the highest, as it certainly is one of the most difficult, of the professions which man is called upon to practice! That, gentlemen, these are facts, sad facts, each one of you knows. Yet so blind do men seem in this matter, so wedded to this pernicious system, that I have known physicians in large practice, able, cultivated men, contributors to medical literature, standing high in the esteem of their brethren, permit their sons to follow out this curriculum. Picture, if you can, the mental condition of such a graduate; an incoherent jumble of theories, a chaotic assortment of what he would call practical tips. But this question has its tragic side, which completely overshadows everything else. It makes one's blood boil to think that there are sent out year by year scores of men called doctors, who have never attended a case of labour, and who are utterly ignorant of the ordinary everyday diseases which they may be called upon to treat, men who may never have seen the inside of a hospital ward, and who would not know Scarpa's space from the sole of the foot. Yet, gentlemen, this is the disgraceful condition which some schoolmen have the audacity to ask you to perpetuate; to continue to intrust interests so sacred to hands so unworthy. Is it to be wondered, considering this shocking laxity, that there is a wide-spread distrust in the public of professional education, and that quacks, charlatans, and impostors possess the land?"

In a short paper, on Surgical Anæsthetics, by Dr. W. B. Plant, we observe mention of a case in which an operation on the face, lasting twenty minutes, was performed—anæsthesia, "continuous, complete, and in every way satisfactory," being induced and maintained by nitrous oxide, and "the quiet sleep might have been maintained indefinitely." With reference to the never-ending controversy on the respective merits of ether and chloroform, Dr. Plant reports that the relative positions remained unaltered during the year, "with the balance in favour of ether."

"Chloroform is still considered the more convenient and ether the safer agent, and while chloroform may be employed with much less risk than usual, in the cases of young children, women in child-birth, and for anæsthesia on the field of battle, ether may also be used under the same circumstances with at least equal safety and little more inconvenience. In the case of old people with chronic bronchitis, ether is said by some to so increase the bronchial secretion as to endanger life. I am not aware of any cases where this has actually occurred."

Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University, contributes to the Section on Anatomy, Physiology, and Pathology, an elaborate paper on Hydrophobia. Premising Pasteur's classification of cases treated by him into—(*A*), persons bitten by animals proved to be rabid; (*B*), those in which there were certificates of rabidity; and (*C*), cases where there was only reason to suspect the existence of rabies, he gives the following statistics:—

"If the cases be analysed according to this classification, we obtain the following results:—Since the beginning of his operations in July, 1885, up to the end of the first half of 1889, there have been been treated under Pasteur's supervision 6,950 patients. There were bitten by animals suspected, but not proven to be mad, 1,187, of whom 12, or 1·01 per cent., died; by animals pronounced rabid by veterinarians, 4,686 persons, of whom 44, or 0·94 per cent., died; and by animals proven experimentally to be rabid, 1,077 persons, of whom 15, or 1·39 per cent., died. The similarity of the results in the three classes shows that the second and third groups must contain a large number of cases in which the wounds were inflicted by rabid animals. If we exclude from the preceding statistics those who began treatment a fortnight or more after being bitten, we find the death-rate in Class *C* to be 5, or 0·42 per cent.; in Class *B*, 31, or 0·66 per cent.; and in Class *A*, 11, or 1·2 per cent.

"The most convincing presentation of the case is to select the results of treatment in persons bitten on the head and face by animals proven to be rabid. In all statistics purporting to give the mortality from the bites of rabid animals, by far the largest death-rate is afforded by the bites on the head and face. I have collected from Pasteur's reports for 1887 and 1888, those bitten on the head and face by animals proven experimentally to be rabid. There were 72 cases, with 4 deaths from rabies during treatment, and 3 following treatment. Of the latter, one was seized three days after the end of treatment, and it is therefore reasonable to suppose that in this case the treatment was begun too late. If this case and those dying during treatment be excluded, there remain 67 cases bitten on the head or face by animals proven to be rabid, with 2 deaths, a mortality of 3 per cent. I was not able to obtain the data for an analysis of all the cases in this group since the beginning of Pasteur's treatment; but after collecting these cases, I have met the statement that the total number of persons bitten on the face and neck by animals proven to be rabid is 540; of whom 21 died, leaving a mortality of 3·89 per cent.; but how many of these are fairly attributable to failure of the treatment does not appear. These cases undoubtedly belong to both Class *A* and Class *B*.

"Unless it can be shown that the mortality following the bites of rabid

animals is as small as that derived from the foregoing statistics, no other conclusion can be drawn than that Pasteur's treatment is efficacious; for we can dismiss as unworthy of consideration all attempts to cast doubt upon the truthfulness of the statistics published by Pasteur."

In the discussion which followed the reading of Dr. Welch's paper, it was suggested that, as the virus of hydrophobia is sterilised by a temperature of 122° F., in cases where potassa or other caustic is not immediately at hand, water heated to 130° should be applied until the caustic can be obtained.

Traité Élémentaire d'Anatomie de l'Homme. Par CH. DEBIERRE, Professeur d'Anatomie à la Faculté de Médecine de Lille. Tome Premier. Paris: Felix Alcan. 1890. 8vo. Pp. 964.

THIS first volume of Professor Debierre's work—which he describes as a manual for the dissecting-room—contains the systematic anatomy of the locomotive, vascular, and peripheral-mucous system, accompanied by brief instructions for dissecting the various regions described. The book is divided into five parts. The first treats of osteology, beginning with the histology and development of osseous tissue, followed by the anatomy of the bones taken singly and collectively; after each bone, its structure, development, and chief varieties are given. The second part is devoted to arthrology: first comes a survey of joints in general—a chapter containing a great deal of useful information. This is followed by a systematic description of the joints of the body. The third part, after giving the histology of muscle, enters into a detailed account of the muscular system, its chief anomalies, and the fascial aponeurosis connected with it. In the fourth part the heart, arteries, veins, and lymphatics are carefully and fully described in order. The last part is devoted to the systematic description of the cranial, spinal, and sympathetic nerves. This completes the first volume.

The manner in which the various subjects are treated is highly satisfactory. The descriptions are clear and concise, sometimes possibly a little brief. Every point is approached in a scientific spirit, and its comparative bearings are shortly referred to. In this volume the practical application of anatomy is not gone into—there is no topography of note; but this will probably be made up for in the second volume. The language is simple and graceful, nowhere too abrupt or too learned; the printing is clear and distinct, the illustrations good and fairly numerous—amongst them will be found several old friends. The whole book forms a most readable addition to anatomical literature, which we can warmly recommend.

Transactions of the Association of American Physicians. Fourth Session, held at Washington, D. C., Sept. 18, 19, and 20, 1889. Vol. IV. Philadelphia. 1889. 8vo. Pp. 381.

We cannot, or, at least, we do not, at this side of "Ocean's Stream," compete with the Transatlantic medical societies in the material finish of the volumes of their Proceedings; nor do we, since the death or decadence of our old Quarterlies, produce anything in periodical fashion which will bear comparison in value of elaborate contents with some of the annual publications of American medical associations. The volume before us, fourth of a series, destined, we hope, to be prolonged, is an example; and as we used the word "medical" above as applying to every branch of our professional work, so, we are glad to see, the word, "American," as the title of the Association, is generalised, not restricted, as in ordinary use, to physicians of the United States, but extended to include the practitioners of the Dominion. of whom a fair number are members of the Association of American Physicians.

This volume contains the President's Address (on the progress of medicine during the last 50 years), and eighteen other papers. The first of these, Dr. Folsom's essay on the early stage of general paralysis, occupying (with the discussion upon it) 28 pages, is deserving of special attention. We quote the passage relating to the ætiology of the condition:—

> "As is well known, it arises most commonly under conditions of prolonged strain, mental, emotional, and physical, especially if joined with unaccustomed high living and alcoholic and sexual excess, or after syphilis. The Irishman who lives in great deprivation (*sic*) at home, where syphilis also is said to be rare, as compared with the rest of Great Britain (*sic*), seldom has general paralysis; but, as a hard liver in the great cities of Scotland and England and America, he has his full proportion. From 5 to nearly 100 per cent. of general paralysis are reported by various observers as having previously had syphilis. Of Mendel's cases of general paralysis the percentage of syphilitics was 75, and only 18 per cent. in other forms of insanity—about four times as many; while

Goldsmith found, by statistics collected in the Danvers Asylum, that six times as many general paralytics had previously had syphilis as the insane, excluding general paralysis. We must admit, I think, that, taking into account self-deception of patients, and their conscious and intentional deceiving their friends and their doctor, at least two-thirds of general paralytics have previously had syphilis."

The prognosis, Dr. Folsom considers to be "so unfavourable that there are only exceptional remissions of the symptoms which last so long as to justify a few writers in calling them cures." He thinks that with more satisfactory treatment more cures may be expected, and he adds that "the travelling or stimulating life usually suggested ends in aggravation of symptoms." He would rely on complete mental rest, with careful attention to exercise, diet, &c.

Another paper in this volume (by Dr. Harold C. Ernst, of Boston) discusses the important question, "How long may a cow be tuberculous before her milk becomes dangerous as an article of food?" The experiments and observations recorded in Dr. Ernst's essay are of the highest importance; and he concludes that it is beyond doubt that "milk coming from cows with no definite lesion of the udder may contain the infectious principle of tuberculosis if the disease be present in other portions of the body of the animal." The whole subject is at present engaging the attention of the Massachusetts Society for the Promotion of Agriculture, on whose behalf the author is working at it, and the paper under notice is preliminary only. One conclusion which (with others) he regards as established by his researches is that "milk from cows affected with tuberculosis in any part of the body may contain the virus of the disease."

On the Causes, Treatment, and Cure of Stammering. By A. G. Bernard, M.R.C.S., L.R.C.P. London: J. & A. Churchill, 11 New Burlington-street. 1889.

The author of this excellent little monograph was a stammerer, and by the adoption of certain rules which he laid down for his own guidance he completely got rid of the habit. The rules are plain and not difficult to follow, and they are such as commend themselves to us as being particularly suitable for the removal of the disease. We say disease advisedly, for we believe that the primary lesion is a purely nervous one—happily it is one that, as the author shows, is curable.

PART III.

SPECIAL REPORTS.

ALCOHOL AND LONGEVITY.

By E. MacDowel Cosgrave, M.D. Univ. Dubl.; F.K.Q.C.P.; Professor of Botany and Zoology, Royal College of Surgeons; Physician to Cork-street Fever Hospital; Examiner in Materia Medica, Conjoint Board, K.Q.C.P. and R.C.S.I.

Of late years the connection between the consumption of alcohol and duration of life has excited great interest, and many attempts have been made to discover whether the evil effects were caused only by excess, and, if so, where moderation passed into excess, or whether alcohol was always injurious, the amount of injury caused being proportionate to the quantity consumed.

Intemperance has by medical opinion been long recognised as a cause of death, and even in old writers this is seen. I shall only quote two sentences which show that the fallacy of arguing from individuals and the heredity of alcoholic habits have long been known. Bishop Berkeley[a] illustrates the first point—"Albeit, there is in every town or district in England some tough dram-drinker set up as the devil's decoy to draw in proselytes."

Erasmus Darwin[b] alludes to the second point—"It is remarkable that all the diseases arising from drinking spirituous or fermented liquors are liable to become hereditary even to the third generation, gradually increasing, if the cause be continued, till the family becomes extinct."

Avoiding many other tempting quotations, I shall endeavour in this paper to present an account of the various efforts which have been made from time to time to estimate the mortality caused by alcohol, and the evidence which can be given in support.

It will be seen that the chief useful sources of information are—(1). Direct investigation into the causes of a number of deaths. (2). Experience of benefit societies. (3). Experience of insurance societies. I have endeavoured to present them clearly and concisely, using the original words when possible, and giving the reference where the original can be consulted. I have myself carefully examined the original before making any quotation, and any statement which could not be traced to its exact source I have omitted. My object has been to arrange my facts so that they might speak for themselves.

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[a] Essay on Tar Water.

[b] Botanic Garden. Part II. Note on *Vitis*.

The first statistics deal chiefly with the intemperate use of alcohol.

MORTALITY OF THOSE ENGAGED IN THE LIQUOR TRAFFIC.

In Table L of the 45th Annual Report of the Registrar-General for England, the mortality of those connected with the distribution of drink is compared with that of other classes, with the following result:—

Average mortality of all males taken as	1,000
,, ,, Clergy was	556
,, ,, Brewers was	1,362
,, ,, Innkeepers, Publicans, and Beer Dealers	1,521
,, ,, Public House and Hotel Servants .	2,205

Dr. Ogle wrote[a]:—"The mortality of men who are directly concerned in the liquor trade is appalling."

This is supported by the experience of the Scottish Amicable Life Assurance Society, from 1826 to 1876, which shows that the mortality amongst males occupied in inns and public-houses was 68 per cent. in excess of the Actuaries' or Healthy Males Table, and 49 per cent. in excess of the English Life Table (No. 2. Males).[b]

VITAL STATISTICS OF THE INTEMPERATE.

Mr. Neison, in his well-known work on Vital Statistics,[c] threw a flood of light on the question. He obtained particulars as to age, habits, &c., of a number of persons, and by an ingenious plan of arranging the particulars of each case upon a card whose colouring divided the cases into various classes, he was enabled to arrange and rearrange his facts until he had worked out an immense number of averages.

[a] Supplement, p. 36.

[b] On the Mortality amongst Publicans, &c. By John Stott. Journal of Institute of Actuaries. 1876.

[c] Contributions to Vital Statistics. By F. G. P. Neison, F.I.A.

The first table[a] of all ages taken together shows:—

The number who ought to have died, according to general rate for England and Wales	110·2
The number of intemperate who died	357·0

Mr. Neison remarks[b]—"Throughout the whole range of the table it will be seen that the rate of mortality is frightfully high, and unequalled by the results of any other series of observations made on any class of population of this country. Sanitary agitators have frequently excited alarms about the wholesale havoc in human life going on in the badly conditioned districts of some of our large cities; but no collection of facts ever brought under attention has shown so appalling a waste of life as is exhibited by the above results."

Mr. Neison contrasts the death-rate of the intemperate with the general death-rate (which, of course, includes the intemperate, and must be raised by them above the death-rate of the temperate).

Equation of Life, being the period of years of which there is an equal chance of living.

Ages	General Population of England and Wales	Persons of Intemperate Habits	
20	44·212	15·557, being 35 per cent.	Of the duration of life in the General Population.
30	36·482	13·800 „ 38 „	
40	28·790	16·627 „ 40 „	
50	21·255	10·860 „ 51 „	
60	14·285	8·947 „ 63 „	

The above Table shows how fearfully the expectation of life is lessened at all ages by the contraction of intemperate habits.

Dividing the cards into "Occupation Groups," Mr. Neison found:—

The average Duration of Life, after the Commencement of Intemperate Habits,

Among Mechanics, Working, and Labouring Men	18 years.
Among Traders, Dealers, and Merchants	17 „
Among Professional Men and Gentlemen	15 „
Among Females	14 „

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[a] Neison, op. cit. 3rd Ed. London, 1857, p. 201, et seq.

[b] Op. cit. P. 204.

INQUESTS AND INTEMPERANCE.

Coroners, from the nature of their work, have long recognised alcohol as a frequent direct cause of death, but they have also recognised its indirect action—for instance, so early as 1759, Mr. Corbyn Morris stated that as a consequence of the very general use of ardent spirits there was "a loss of 80,000 infants in the course of 20 years—a mortality unequalled in the annals of human misery and woe."[a]

At an inquest held in June, 1839, the coroner, Mr. Wakley, said:—"I think intoxication likely to be the cause of one-half the inquests that are held." Mr. Bell, the clerk to the inquests, observed that the proportion so occasioned was supposed to be 3 out of 5. "Then," said Mr. Wakley, "there are annually 1,500 inquests in the Western Division of Middlesex, and according to that return 900 of the deaths are produced by hard drinking." Not long afterward, at another inquest, Mr. Wakley, said—"I have lately seen so much of the evil effects of gin-drinking that I am inclined to become a teetotaller. Gin may be thought the best friend I have; it causes me to hold annually 1,000 more inquests than I should otherwise hold. But besides these I have reason to believe that from 10,000 to 15,000 persons die in this metropolis annually from the effects of gin-drinking upon whom no inquests are held."[b]

THE REGISTRAR-GENERAL'S RETURNS.

It might be thought that in the return of the Registrar-General the true mortality arising directly from alcohol might be found. This is not, however, the case. I believe that the yearly deaths from intemperance entered in the returns of the Registrar-General for England have never been higher than between 1,400 and 1,500. This would not be enough to account for even the extra deaths amongst drink-sellers; much less would it account for the deaths amongst the whole community. At present alcoholism is only given as the cause of death when present in some acute form, such as *delirium tremens*. In most other cases there is some other disease (possibly caused or rendered more fatal by the alcoholism), and it is this disease which is registered. The fact that the certificate is not treated as a confidential document prevents medical men entering alcoholism if they can possibly help it.

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[a] Observations on Bills of Mortality in London, 1759. By Corbyn Morris.

[b] "Bacchus." By Dr. R. B. Grindrod. 1839. P. 182.

DR. NORMAN KERR'S RESEARCHES.

Guesses have frequently been made as to the mortality arising from alcohol, but the first careful and sustained attempt to arrive at a correct estimate of the mortality ascribable to alcohol, and the different effects caused by its moderate and excessive consumption, was made by Dr. Norman Kerr, who communicated his results in a paper read at the Social Science Congress.[a] The author combatted the extraordinary opinion enunciated by Dr. Farr, in a letter addressed to the Registrar-General, that the deaths from alcohol were rapidly decreasing, and were very few in number—less than 1,500 persons being returned as dying from alcohol in 1876; and went on to show how very different was the true state of matters.

In order to arrive at an approximation to the truth Dr. Kerr kept a careful record of all deaths occurring in his practice. In one period of twelve months he either certified to the registrar, or testified before the coroner, to the causes of the death of 55 persons; and he knew that 13 of these had died either from their own intemperance or from disease or accident arising from the intemperance of others. As there were some 16,000 practitioners of medicine in the kingdom, after deducting a proportionate number of cases for the unusual extent of his practice, and the increased mortality he had experienced in his Poor Law work, this gave a total annual mortality from alcohol, for the whole country of 128,000. Astounded at these terrible figures, Dr. Kerr endeavoured to check their accuracy by a variety of methods. He examined his entire death-roll for seventeen years, and found that the average annual alcoholic fatality, calculated as before, during that whole period, was 120,800. Dr. Kerr then gave a summary of the cases of deaths from drink in the practice of twelve medical men in different parts of the country, showing a considerably higher death-rate than even his own had done.

Not satisfied even with this corroboration of the moderation of his estimate, Dr. Kerr proceeded to calculate the mortality on a wholly different basis. Taking Mr. Neison's death-rate of drunkards,[b] there being admittedly 600,000, the number of the intemperate dying annually was 40,500. If to these were added one-fourth of the infant mortality, as due directly or indirectly to alcohol—65,000—there remained, say of 120,000, only the very small number of 14,500 for the deaths from violence and accident, other deaths from excess, and the great multitude of wives, and children beyond the age of five, dying from their own drunkenness or the drunkenness of others.

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[a] Cheltenham Meeting. October, 1878.

[b] *Cf. ante.*

Dr. Kerr made still another estimate, based on a totally different calculation. More than 70,000 persons died every year in public institutions, such as hospitals and workhouses, and of these deaths at least a third, or 23,627, were the effect of intemperance. Fully 12,000 engaged in the liquor traffic died annually, and more than 11,500 succumbed to violence consequent on drinking. If to these were added the alcoholic infant mortality, only 7,873 remained for all other alcholic causes of death, to reach the previous reckoning of 120,000. Dr. Kerr gave as his own opinion that if the truth were fully disclosed the number of deaths annually arising directly or indirectly from drink would be found to be nearer 200,000.

When Dr. Kerr's paper was read Dr. Farr occupied the chair, and seemed astonished at the figures, but Dr. Hardwicke stated that in his opinion Dr. Kerr's estimate would be ultimately found to be under the truth, and before the close of the proceedings Dr. Farr admitted that perhaps between 30,000 and 40,000 persons might die directly from alcohol every year, which was not far from the 40,500 contended for by Dr. Kerr.

At the meeting of the Sanitary Congress[a] in the following year Dr. Kerr returned to the subject, correcting his figures, as he had found there were 18,000 medical men practising in the country, and not 16,000, as he had assumed in the previous year. This brought the numbers to 45,562 dying from personal intemperance and 89,437 from the intemperance of others, making a total of 134,999.

DR. MORTON'S STATISTICS.

The next investigation was made by Thomas Morton, M.D., who collated the result of his own personal experience and that of nineteen medical friends, and got 39,287 as the deaths wholly or partly due to alcohol in England and Wales. This was equal to 52,640 for the United Kingdom. In his calculation he included only about half the deaths which occurred in workhouses and none of those occurring in hospitals or asylums.

[a] Croydon, 1879.

Dr. Morton brought the result of his investigations before the Harveian Society,[a] and showed how, in his opinion, the deaths appeared in the Registrar-General's return. He suggested that a committee should be appointed to investigate the matter in the same way, but on a more extended scale. This proposition was seconded by Dr. Norman Kerr, and carried unanimously, the appointment of the committee being left to the council.

THE HARVEIAN SOCIETY'S INVESTIGATION.

The Committee, after a careful investigation reported to the Society.[b] They stated that they had confined themselves to the metropolis, and had got information from medical men as to the habits of 10,000 cases (above twenty years of age) whose deaths had been registered. Of these 7,505 were certified by private practitioners, 1,183 in workhouses, infirmaries, and lunatic asylums, 646 in hospitals, and 666 inquests. The following was the result:—

A. Deaths in no wise due to alcohol - - -	8,598
B. Deaths accelerated or partly caused by its abuse -	1,005
C. Deaths wholly due to it - - - -	397

This "gives 1,402 deaths—as nearly as possible 14 per cent.—in the causation of which alcohol appears to have played some part. If this part were in all cases a leading one it would correspond to an annual adult mortality of about 5,870 from alcohol in London, or 38,971 for England and Wales, assuming for the moment that the metropolitan figures would apply to the whole country."[c] This would make the figures for the United Kingdom about 52,000.

Of course in some of the cases in Class B, the influence of alcohol must have been much less than other cases of the same class, but in all the cases alcohol was stated by the medical man who had certified to the death to have partly caused or accelerated the death.

The proportion of cases occurring in Class C varies with the source of the information.

In hospitals it equalled - -	1·55 per cent.
In private practice it equalled -	4·317 ,,
In infirmaries ,, -	2·133 ,,
In inquests ,, -	5·6 ,,

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[a] November 21st, 1878.

[b] November 16th, 1882. British Medical Journal, January 20th, 1883.

[c] Report.

The small proportion amongst the hospital cases is explained by the previous history of the patient being so often unknown, and by the regulation of the committee that in the case of hospital returns no case was entered in Class C without verification by a *post-mortem* examination.

The committee did not deal with the deaths caused indirectly by alcohol.

THE COLLECTIVE INVESTIGATION.

The next systematic attempt to arrive at the alcoholic death-rate was made by the British Medical Association. Circulars were issued to the members of the Association, on May 9th, 1885, asking them to fill in from the counterfoils of their death-certificate books particulars of each case, noting whether they were—

A. Total abstainers.
B. Habitually temperate.
C. Careless drinkers.
D. Free drinkers.
E. Decidedly intemperate.

In case of doubt as to which of two classes a patient should be considered as belonging, he was to be placed between the two by joining the letters, as AB, CD. In case of still further uncertainty a blank was to be left.

The Report[a] was presented by Dr. Isambard Owen, at the Annual Meeting of the British Medical Association in Dublin, August, 1887.

Of the 4,234 males over the age of twenty-five reported on, about 45 per cent. were habitually moderate in their alcoholic habits, 25 per cent. were careless, and 30 per cent. more or less distinctly intemperate (15 per cent. decidedly so).

The following are the only paragraphs in the summary of the Report which deal with longevity:—

"1. That habitual indulgence in alcoholic liquors, beyond the most moderate amounts, has a distinct tendency to shorten life—the average shortening being roughly proportional to the degree of indulgence.

"2. That of men who have passed the age of twenty-five, the strictly temperate, on the average, live at least ten years longer than those who become decidedly intemperate (we have not in these returns the means of coming to any conclusion as to the relative duration of life of total abstainers and habitually temperate drinkers of alcoholic liquors)."

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[a] British Medical Journal. June 23rd, 1888.

"12. That total abstinence and habitual temperance augment considerably the chance of a death from old age or natural decay, without special pathological lesion."

An attempt was made (as Dr. Isambard Owen says, "founded on certain statistical figures contained in the Report, which are systematically quoted apart from their context, and in defiance of the explanations therein given") to argue that these figures showed that total abstainers died at an earlier age than moderate or even excessive drinkers, and flyleafs to this effect have been largely circulated by what terms itself, *par excellence*, "The Trade." Dr. Isambard Owen and others have written to show how unjust any such deduction is. The following are the figures:—

The average age at death of

122	total abstainers was	51	years	80	days.
1,529	habitually temperate was	62	,,	50	,,
977	careless drinkers was	59	,,	246	,,
547	free drinkers was	57	,,	216	,,
603	habitually intemperate was	52	,,	14	,,

Thus the less alcohol consumed the longer the people lived, but apparently those that took none lived the shortest of all—a manifest paradox!

The fact is that out of the 4,234 cases whose deaths were analysed there were only 122 deaths of total abstainers—a very small proportion, indeed. That their average age was not high is explained by the fact of widespread total abstinence being a comparatively recent thing, and the average age of abstainers is consequently not as high as the average age of non-abstainers; consequently, when the deaths of abstainers are analysed the average age must be comparatively low. To take an extreme comparison—if an inquiry was made into the relative healthiness of medical men and medical students it would be found that the students died at a much lower average age than medical men did. It would not be fair to conclude that the life of the medical student was therefore a more hazardous one. The difference in ages of the two classes would have to be remembered, and the fact that no matter how low the death-rate amongst medical students was, the average duration of life could not be high, owing to the individuals composing the class being young.

The check required is to see the relative incidence of deaths out of equal numbers at similar age, but the returns could not provide this.

The *British Medical Journal* wrote[a]:—"Rarely has any document been the subject of such extraordinary misconception and misrepresentation as have fallen to the lot of Dr. Isambard Owen's Report of the Collective Investigation on the Connection between Drink and Disease. All over the kingdom Dr. Owen has been represented as laying down, from the returns sent in to this committee, that total abstainers do not live so long as moderate drinkers, or even as those who are actually intemperate. We need hardly say to our readers that Dr. Owen has never said anything of the kind. On the contrary, he distinctly stated that no conclusion could be drawn from the returns as to the relative longevity of teetotallers."

In the account of the Sceptre Insurance Statistics further light is thrown on this fallacy.

PATHOLOGICAL SOCIETY'S DISCUSSION.

Another investigation into the connection between alcohol and disease may be mentioned, although it gives no light on the numerical aspect. On Dec. 4th, 1884, the Pathological Society of London had a discussion on the morbid anatomy and pathology of chronic alcoholism, which was continued on Dec. 18th and Jan. 15th, 1885. One of the most important points established was the intimate connection between alcoholism and tubercle. The work of the Pathological Society will help in one way to check the Registrar-General's return. If the relative rate of mortality amongst the intemperate and temperate from diseases of the various organs can be learned, as the returns of the Registrar-General give the distribution of deaths from diseases of these organs, the approximate number of deaths from alcohol can be calculated.

LONDON TEMPERANCE HOSPITAL.

The London Temperance Hospital should be mentioned, although its experience is neither long nor extensive enough to admit of any certain deductions being drawn. For nearly eight years it was situated in Gower-street, and ten years ago was removed to a specially built building in Hampstead-road. It contains accommodation for

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[a] September 1st, 1888.

120 patients and is built with all modern sanitary improvements. From its foundation to the end of 1888, 5,390 in-patients were treated, with 333 deaths, the average death-rate being 6·18. As particulars of the cases treated are regularly published, the severity of the class of cases treated can be tested, and it will be found to be about the same as in other general hospitals. It may be mentioned that 2,782 of the in-patients were abstainers and 2,608 non-abstainers.

FRIENDLY BENEFIT SOCIETIES.

A most important assistance in determining the relative health and death-rates amongst abstainers and non-abstainers belonging to the same class, and selected after a similar examination is afforded by the careful actuarial reports on the various Friendly Societies which have lately been published.

Three societies, whose members are drawn from the same class, have recently had their returns carefully analysed—the Ancient Order of Foresters,[a] the Manchester Unity of Oddfellows,[b] and the Independent Order of Rechabites.[c] The years of lives observed in both the Oddfellows and Foresters was very large, being over a million and a quarter in each. In the Rechabites the numbers of years of lives observed were 127,269, but the inquiry in their case had the advantage of extending over ten years.

Before giving Mr. Neison's tables it may be interesting to mention that the Independent Order of Rechabites was founded in 1835 as a friendly benefit society, the members of which should be persons not taking intoxicating drinks, "except in religious ordinances or when prescribed by a physician," and who for weekly payments should be entitled to "sick pay" during illness and "funeral money" at death. The payments vary according to the age at entrance, and from 5s. to 15s. per week, and from £5 to £20 at death can be subscribed for according to the number of shares taken. An analysis of 37,802 members was returned to Mr. Neison on the forms he drew up. Nothing could exceed the care with which Mr. Neison tried to avoid error, and conclusions based on insufficient grounds.

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[a] The Rates of Mortality and Sickness, according to the Experience for Five Years, 1871–1875, of the Ancient Order of Foresters Friendly Society. By F. G. P. Neison, F.I.A., &c.

[b] 1866–1870. Quoted by Neison. Op. cit.

[c] The Rates of Mortality and Sickness, 1878–1887, of the Independent Order of Rechabites Friendly Society. By F. G. P. Neison, B.L., F.I.A. Manchester, 1889.

The following table shows the relative rates of mortality for the three societies:—

Ages	Rate of Mortality per cent. per annum		
	Oddfellows, 1866–70	Foresters, 1871–75	Rechabites, 1878–87
Under 25	·632	·753	·603
25	·788	·807	·509
35	1·094	1·174	·619
45	1·647	1·802	1·119
55	2·877	3·286	2·325
65	5·911	6·510	5·815

With regard to the first table Mr. Neison remarks[a]:—"The low rate of mortality appears to run through the table, and is not confined to one period of life. To test whether there might be anything in the occupations of the members which would throw light upon this subject, though time would not admit of a thorough investigation in this respect into the records for the whole experience, a number of the cards, taken indiscriminately, were examined, but nothing of an exceptional character disclosed. Thus I was brought back to the fact that, certainly in one respect, all the members were supposed to be on a common basis—viz., total abstainers."

The next table is of great interest:—

The Number that would survive until Age	Of 1,000 persons all aged 18		
	Oddfellows, 1866–70	Foresters, 1871–75	Rechabites, 1878–87
25	957	950	962
30	922	915	938
35	884	873	914
40	840	828	888
45	791	776	856
50	764	714	815
55	636	641	760
60	584	552	687
65	483	453	590
70	370	335	461
75	245	218	306
80	134	118	165

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[a] Rates of Mortality of Rechabites. Neison. P. 22.

It will be seen that the survivors at all ages would be most numerous amongst the Rechabites.

The following two tables also are of interest, and show how the Rechabites have the advantage:—

Age	The number living out of whom one dies in the year		
	Oddfellows, 1866–70	Foresters, 1871–75	Rechabites, 1878–87
20	166	137	179
30	125	124	195
40	89	83	155
50	59	54	83
60	31	30	40
70	15	14	15
80	7	7	7

Age	The after-lifetime is at		
	Oddfellows, 1866–70	Foresters, 1871–75	Rechabites, 1878–87
Years	Years	Years	Years
20	41·3	40·2	45·1
30	34·0	32·9	37·3
40	26·7	25·8	29·1
50	19·9	19·1	21·2
60	13·6	13·2	14·2
70	8·5	8·3	8·5
80	5·0	4·9	4·9

Mr. Neison remarks[*]:—"Thus, at age twenty, the expectation of life among the Rechabites is more by about four years than the experience of the Oddfellows and Foresters. For the reasons already alluded to, however, a better comparison would be attained by taking at age twenty, for example, the difference between the "probable lifetime" of, say, the Foresters and Rechabites. If this be done, an average increment in lifetime of no less than 5·7 years would be shown for the Rechabites."

Although figures for other periods show the advantage much more largely on the side of the Rechabites, I have preferred to give only those which have passed through the most searching tests of the actuary.

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[*] Op. cit. P. 39.

INSURANCE STATISTICS.

In 1840, a Quaker, named Robert Warner, wanted to insure his life; but, being a teetotaller, the company he went to wanted to charge him 10 per cent. extra on his premium. Warner thought it ought rather to be 10 per cent. less; so, getting some friends to join him, he started a Mutual Society for Abstainers only, and took out policy No. 1 for £200, and up to the end of 1886 at all events was alive.

In 1847, a section for moderate drinkers was added. This was called the "General Section," and the office has since been known as "The United Kingdom Temperance and General Provident Institution." Since 1866. careful actuarial examinations have been published. From the subjoined Table it will be seen that in the 24 years, 1866–89, 6,894 deaths were expected in the General Section, and 6,645 occurred; whilst in the Temperance Section 4,542 were expected, and only 3,198 occurred. These figures are drawn from an experience of 84,000 lives (the number of policies in force during 1885 were 29.831), and payments of policies amounting to £2,700,000, and afford the following comparison:—Out of each 100 deaths expected, 96·388 occurred in the General Section, and 70·409 in the Temperance Section. In other words, out of each 100 deaths expected, the gain in the Temperance Section, as compared with the General Section, is 25·979.

United Kingdom Temperance and General Provident Institution.

	Temperance Section		General Section	
	Expected Deaths	Actual Deaths	Expected Deaths	Actual Deaths
1866-70	549	411	1008	944
1871–75	723	511	1268	1330
1876–80	933	651	1485	1480
1881–85	1179	835	1670	1530
1886–89	1158	790	1463	1361
	4542	3198	6894	6645

The Sceptre Life Association made a very important contribution to the knowledge of the effects of alcohol on longevity by the publication of the Report of the valuation, made so carefully by Mr. H. W. Manly, F.I.A. This valuation was a "Pure Premium Valuation based on the Institute of Actuaries' H.M. Mortality

Table, and 3½ per cent. rate of interest." I take the following from Mr. Manly's Report:—

"The Board has requested me to apportion the share belonging to the policy-holders between the 'General' and 'Temperance' section, according to their separate contributions to it.

"In order to arrive at a fair division on the present occasion, I have compared the actual claims in each section during the past five years with the claims that might have been expected according to the Institute of Actuaries' H.M. Table. The result is as follows, and will, no doubt, prove interesting:—

"*Mortality Experience*, 1884–88.—General Section—Expected, 466; actual, 368; percentage, 79. Temperance Section—Expected, 195; actual, 110; percentage, 56.

"Adding in 1889, the experience for the six years was:—

"General Section—Expected, 569; actual, 434; percentage, 76. Temperance Section—Expected, 249; actual, 143; percentage, 57.

"Out of the 3,338 policies issued during 1886–89, 1,928 were on the lives of total abstainers, or nearly 58 per cent.

"The actual deaths are very low in both sections. The Company explain it thus:—

"'This highly favourable result is traceable to the fact that, through the special connections of the Association, by far the largest portion of the business is obtained from persons who are members of some Christian Church, and, if not total abstainers, are very abstemious and regular in their habits.'"

The result of Mr. Manly's investigation aroused general interest. One quotation may be made:—

"Once again, the 'Temperance Section' wins. And it certainly does appear singular that, in regard to the single factor of the use or non-use of intoxicating liquor, so marked a difference should arise, and especially in an association where the great bulk of the assured belong to the religious class, and among whom, therefore, it may be presumed, if intoxicants are used at all, their use will be strictly within the limits of moderation." [*]

By the kindness of Mr. Bingham, I am able to give some figures which throw light upon Dr. Isambard Owens' figures. Mr. Bingham has given me the age at which insurers died during the five years covered by Mr. Manley's valuation, dividing them into the two sections. By these figures I find that the average age at death in the general section was 51·3, and in the temperance section only 44·2; and yet, in the former, the mortality being 79 per cent. of the expectation, and in the latter only 56 per cent. This shows how impossible it is to argue from the ages at death without having the number of those living at each age, which was what was done with Dr. Isambard Owens' statistics.

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[*] The Commercial World, March 15th, 1889.

The Whittington Life Assurance Company was established in 1855. Both sections pay at the same rate. In 1866 the assurers in the temperance section got 6 per cent. more bonus than the other policyholders; in 1869, nearly 7 per cent.; in 1872, 14 per per cent.; whilst in 1881 it had risen to 23 per cent.; and in 1884 to 25 per cent. higher than in the other section. The next valuation is to be declared at the end of the present year.

The Marine and General Mutual Life Assurance Society took over the business of the Briton Life Association (Limited) in 1877, and continues by agreement to issue policies to total abstainers at an abatement of 10 per cent. An annual declaration as to "abstaining from the use of intoxicating beverages" is required.

The Scottish Temperance Life Assurance Company (Limited) was established seven years ago. It gives 10 per cent. reduction to total abstainers. At the annual meeting, held 7th March, 1890, it was stated by the chairman that already policies for over a million had been issued.

The Blue Ribbon Life, Accident, Mutual, and Industrial Insurance Co. (Limited) restricts its business to total abstainers. It charges lower premiums than other companies. It is also doing a large business, and its statistics will be of value.

The Lancashire and Yorkshire and the Scottish Temperance issue accident policies to total abstainers at 10 per cent. reduction. The Blue Ribbon also has an accident department. The reduction would be larger were it not that total abstainers are liable to accidents caused by the intemperance of others.

Such are the chief sources from which information can be derived bearing upon the effects of alcohol on longevity. It will be seen that the effect of alcohol in shortening life is very great, when the alcohol is taken in large quantities; but it is also apparent that if a large number of people who consume alcohol in moderate quantities are compared with a number similar in other respects, but not taking alcohol at all, the longevity of the latter will be superior to that of the former. In the case of benefit societies the intemperate use of alcohol probably causes some of the higher mortality, but in insurance societies of old standing, only taking selected lives that have passed medical examination, the great advantage in longevity enjoyed by the abstainers cannot be accounted for by any probable—I might almost say possible—incidence of intemperance in the non-abstaining branch.

That the exact effect of alcohol on longevity is not yet known is plain, but the figures and opinions I have given show that a great mass of information is gradually being accumulated. To arrive at a more certain answer it is important that further investigation should be made. The chief ways in which this may be done are:—

1. The statistics of insurance societies and benefit societies will, as time goes on, become more and more valuable as their extent and duration become enlarged.

2. Further investigation can be made into the action of alcohol in the causation of death, in the way done by Dr. Kerr, Dr. Morton, the Harveian Society, and the Collective Investigation Committee. But in future investigations medical men should not be asked to look through back certificates, but a future period of one or more years should be selected for the investigation, and medical men should be supplied with forms and asked to fill in particulars of each death as they certify it. By this means the forms would be filled whilst the case was fresh in the mind, and when needful inquiries could be made. Statistics so procured would be much more reliable than those founded on an analysis of the blocks of old certificate-books. Medical men interested in the subject would do well to commence at once noting these particulars which would then be ready for future investigations.

3. Much would be learned by investigating the effects of alcohol in causing various diseases and then seeing in the Registrar-General's returns the numbers registered as dying from these diseases. Something has been done in this way in the investigations already described here. Much more remains to be done. The great advantages of this method are that concealment of the alcoholic habit is not so easy as it is in the direct investigation, and that the field of investigation is not limited, but includes all the deaths registered in the United Kingdom.

Of the importance of the investigation nothing need be said. The evidence so far goes to prove that the deaths arising directly or indirectly from alcohol are as numerous as all other preventable deaths put together. Surely the medical profession, as sanitarians, are not only justified in doing, but are called upon to do, what they can to trace to its source and lessen this sacrifice.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Samuel Gordon, M.D., F.K.Q.C.P.I.
General Secretary—W. Thomson, M.D.

SECTION OF MEDICINE.

President—Lombe Atthill, M.D.; President of the King and Queen's College of Physicians.
Sectional Secretary—A. N. Montgomery, M.K.Q.C.P.

Friday, May 16, 1890.

John William Moore, M.D., Univ. Dubl., in the Chair.

Acute Confusional Insanity.

Mr. Conolly Norman read a paper on Acute Confusional Insanity. [It will be found in the Number of the Journal for June, 1890, Vol. LXXXIX., No. 222, page 506.]

Mr. Molony inquired whether, firstly, in the younger persons whose cases had been detailed, the state of the heart and kidneys had been examined; and, secondly, in the older persons, particularly in the case of the woman who fancied a black man came into her room at night, whether there had been any uterine trouble, or had the climacteric time been reached. He had himself observed a considerable number of cases in which, at the climacteric time of life, there was confusion as to dates and places, and also, most commonly in cases of the melancholia type, delusion of persecution by unseen agents. One woman's insanity commenced with the hallucination that somebody was outside at the gate shouting that she was too fond of going into her father's bedroom—(her father was suffering from bladder trouble)—and that such conduct was indecent. At the outset she exhibited maniacal excitement, and for several months she was rather confused in identifying those about her, being doubtful whether her nurse of to-day was the nurse in charge of her the previous day, and doubtful also of his (Mr. Molony's) name, while identifying him sometimes by his boots, and at other times by his hat.

Mr. Conolly Norman, in reply, said there was no heart or kidney affection in the younger cases; at least, though anxiously searched for, none was discovered. The woman who came to Dublin to consult her lawyer was aged fifty, and had ceased to menstruate at forty-seven; but there was no indication of uterine trouble. He was inclined to think that to the type which he had described, belonged the case mentioned by Dr. Molony. Cases of the kind seemed to vary in character between mania and melancholia, giving rise to difficulty of classification; but in the asylum such classification was not so important for purposes of treatment, as to comply with the desire of the Psychological Society, there being what was called in asylum slang a "refractory ward," into which cases that would not go anywhere else were inevitably put.

Medicated Soaps.

Dr. Walter G. Smith made a communication upon medicated soaps. He drew attention to the differences in preparation and properties of soda and potash soaps, and pointed out the injurious effects upon the skin of an excess of alkali, which removes not only the greasy dirt but also robs the skin of its natural fat. This is derived from two sources—(*a*) the glands, sebaceous and coil-glands; (*b*) the eleidin, of the epidermis. Over-fatty (super-fatted) soaps—*i.e.*, containing some unsaponified fat—represent a real advance in the preparation of good soaps for medicinal use. The composition of "Grund-Seife" (Basis-Seife) is: Beef suet, 59·3 per cent; olive oil, 7·4 per cent.; soda ley (38° Réaumur), 22·2 per cent.; potash ley, 11·1 per cent. This can be medicated by a variety of drugs—*e.g.*, resorcin, ichthyol, sulphur, mercurials, &c. The detergent action of soap was explained, and the modes of using medicinal soaps commented upon.

Some illustrative experiments were shown.

Dr. M'Veagh said that to dermatologists medicated soaps had many recommendations for the treatment of parasitic diseases; and he expressed great faith in corrosive sublimate soap for eczema in children, rubbing it in and then putting on a thin gauze.

Mr. S. M. Thompson inquired whether salicylic acid might be used in soap for eczema of the head in children without causing irritation.

Mr. William Stoker, having regard to the limitation of the medicated soap chiefly to the soap composed of the fatty acids, in which the alkali had replaced the glycerine, inquired as to lithium soap; secondly, in view of the explanation of the action of soap on the hands in the ordinary method of use, whether it was equally true of the supra-fatty soaps that there was free alkali in free dilution; and thirdly, whether it was competent in the glycerine soap to retain much of the glycerine as used in commerce, or was it only "glycerine," so-called on the *lucus a non lucendo* principle. He had been informed by a Dublin manufacturer, on the surface of whose soap he noticed globules, that almost all the glycerine was retained in the soap.

The **Chairman** said he had seen ointment containing 10 grs. of salicylic acid to the oz. used even on children without deleterious effect. As regards the question whether glycerine was really present in so-called "glycerine soap," the sweet taste of that soap was conclusive evidence of its presence.

Dr. Walter G. Smith, in reply, said as regards Mr. Thompson's inquiry, the question was one of the practitioner's judgment. As to Mr. Stoker's questions, he had no knowledge of lithium soap. The transparent glycerine soap contained a large amount of glycerine. He had not had time to make an analysis of the "Vinola" soap. There was no doubt that the use of medicated soaps represented a distinct advance in the methods of treatment.

Revival under New Names of some Old Fallacies bearing upon Medicine.

Dr. T. More Madden read a paper on the Recent Revival under New Names of some Old Fallacies bearing on Medicine. [It will be found at page 22.]

Mr. A. N. Montgomery said, with reference to massage, it was a pity Dr. More Madden had not attended the previous meeting of the Section, at which an exhaustive paper on the subject was read by Dr. Kendal Franks, who traced its origin to many years prior to the Christian era, and advocated taking the treatment out of the hands of quacks and charlatans and putting it on a scientific basis, which he had explained. It was also to be regretted that Dr. More Madden, in sending in the title of his paper, had not specified the *Fallacies* which he intended to discuss.

Mr. Conolly Norman said that about massage he knew little; but since it had been prescribed by some enthusiasts in late years as a universal remedy in mental diseases, he fully shared in the terms of contempt and scorn with which Dr. Clouston, of Edinburgh, had referred to the curative powers claimed for it in mental disease. That mesmerism had taken the course it did was unfortunately due to the attitude adopted towards it by the medical profession in the time of Mesmer—denying the truth of certain things which were undoubted facts. But since the days of Heidenhain, and since Charcot's investigations, the faculty looked upon what was now generally called "hypnotism" in a more serious way. That there was some truth in the phenomenon everybody knew, but that hypnotism had the therapeutic effects ascribed to it, he agreed with Dr. More Madden, was incredible and absurd. He had learned that Charcot was now withdrawing from the practice of hypnotism, conceding that its certain evil effects counterbalanced any good that might be anticipated. Voisin, the author of a famous treatise on several diseases common to the insane—amenorrhœa, epilepsy, masturbation, lying, thieving, and moral insanity—was under the delusion that these diseases could be cured by its means. It was almost enough to overturn one's mental balance to broach the idea that moral depravity could be cured through the agency of hypnotism. As a warning of the danger of hypnotism, Heidenhain's first and favourite subject was his own brother—a fine, active, healthy young man, who, under the constant strain of hypnotic experiments, fell into a state of neurasthenia, became incapable of following his profession, and had to take a holiday of two years' duration before he recovered his mental tone. He had read a recent case in a German medical journal recording the details of a woman who fell into the hands of a hypnotic quack and was hypnotised into a state of acute confusional insanity.

Dr. More Madden, in reply, said he was glad to find Dr. Conolly Norman concur in his views.

The Section adjourned.

L'ÉCHUJINE.

The arrow-poison imported from Africa by *Schinz* is proven to belong to the *Adenium Böhmianum* (Schinz). It occurs in broken masses, odourless but bitter. K. Böhm has extracted two bodies from the crude mass—(1) "*l'échujor*," a resinoid substance, soluble in alcohol and ether, occurring in fine crystals, but inert; (2) "*l'échujine*," obtained in crystalline form in a precipitate by ether. It is soluble in alcohol and in water. The aqueous solution is neutral, and is precipitated by alcohol. Böhm considers that it is a glucoside, having the formula $(C_5H_8O_2)\,n$. In its action it much resembles digitalin, than which it is more active. In toxic doses it produces in the frog violent contractions of the heart, and in dogs and rabbits convulsions, dyspnœa, and vomiting.—*Les Nouveaux Remèdes*, No. 8, 6^{e} année.

RATIONAL TREATMENT OF FLAT-FOOT.

T. S. Ellis describes (*Edinburgh Medical Journal*, January, 1890) a rational method of treating flat-foot without the use of mechanical appliances. The chief principles are:—To make the patient vigorously spring on tiptoe, both as a special exercise and in walking; this raises the arch and relieves strain on ligaments; avoidance of continuous strain on ligaments, as in careless standing; avoidance of prolonged standing; low heels, flat soles not too thick, and no springs or supports to arch; giving free play to inward movement of great toe; never turning the toes out in walking; avoidance of fatigue.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

SESSION 1889-90.

Report of two Successful Cases of Nerve Suture and Tendon Suture in the Treatment of Severe Lacerated Wounds of the Forearm.[a] By HENRY O'NEILL, M.D., M.Ch., Visiting Surgeon, Belfast Royal Hospital.

[The patients were shown to the members of the Society.]

CASE I.—Mrs. S., 352 Newtownards-road, Belfast, aged thirty-eight years, married, has had six children; her general health is good, but she is rather nervous.

On January 9th, 1889, she slipped off a chair on which she was standing, and fell against a window, pushing her right hand through a pane of glass, and producing a lacerated wound of the forearm, about two inches long, directed obliquely across the middle of the forearm, one inch above the level of the wrist joint. The hæmorrhage was severe. The wound was sutured and dressed by a surgeon, and was quite healed when I first saw her on the 30th of January, 1889, three weeks after the accident. On careful examination of the affected parts I found the wound firmly healed by cicatrisation. She had loss of power of flexing the right index, middle, and ring fingers, complete loss of sensation in the index finger, diminished sensation in the thumb, third, and fourth fingers in front. Previous to this accident she had perfect sensation, and power of motion in the thumb and fingers of her right hand, and was able to perform all her household duties; but since the accident she is unable to hold any article in her right hand, except with the fourth and fifth fingers, and as a consequence is unable to attend to her usual duties.

I inferred from the symptoms observed she had wounded the median nerve, and one or more of the outer flexor tendons of the fingers. Faradaic electricity and massage were employed for two weeks, but did not apparently lessen the paralysis.

30th January, 1889.—To-day, at her own house, with the assistance of my pupils, Messrs. J. A. Browne, B.A., and J. Taylor, the patient was anæsthetised with bichloride of methylene; the parts affected were thoroughly washed and purified; the forearm was rendered bloodless by Esmarch's bandage, and a wound of two inches made along the line of the median nerve, crossing the cicatrix of the former wound. The median nerve and flexor tendons were exposed. I found the outer half of the median nerve and the outer half of the tendon of the flexor sublimis cut across, the tendon of the palmaris longus cut completely across, and the upper end retracted one inch; all the other tendons which were seen in the wound were uninjured.

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[a] Read before the Ulster Medical Society, December 4, 1889.

The cut ends of the median nerve were retracted ¼ inch and bulbous, and joined by a band of fibrous tissue and lymph. I scraped away the fibrous tissue and lymph from the cut ends of the nerve, and sutured them with two fine chromicised catgut sutures, perforating the whole thickness of the nerve ¼ inch from the cut ends, passing one suture from before back, and the other suture laterally, so as to bring closely together the cut ends of the nerve fibres.

The cut tendons were similarly sutured with catgut. The skin wound was sutured, drained with decalcified chicken-bone, and dressed with iodoform, iodoform gauze, and absorbent wool. The wrist and elbow joints were well flexed and placed across the chest, and the patient put to bed.

January 31st.—Wrist painful; restless at night; gave ext. opii. gr. i. at bedtime.

February 7th.—Wound dressed for first time; superficial sutures absorbed; wound open; pain felt in third finger and in the thumb; dress as before.

15th.—Wound granulating and healthy, feeling returning to paralysed fingers (sixteen days after suturing the cut nerve).

22nd.—Feeling has returned to each finger; can flex all the fingers well except index, and she can flex it one half.

April 16th.—Feeling normal in fingers, but less on outer surfaces of index finger.

May 6th.—Wound firmly healed; perfect power of flexion and extension, and of feeling in fingers, except outside of tip of index, where it is less than in the other fingers.

November 30th.—Patient can move fingers perfectly; sensation good, but fingers often feel cold.

She now can use her right hand as well as before the accident, although rather weaker than the left hand.

Case II.—Hugh M., aged forty-six years, 6 Hanover-street, Belfast, baker, married, healthy.

On May 23rd, 1889, while he was walking over a glass roof he slipped and fell, and while trying to save himself from falling through the roof, he pushed his right hand and forearm through one of the thick glass panes, which produced two deeply incised and lacerated wounds, each three inches in length, across the forearm, and about two inches apart, completely severing the ulnar artery, the radial and median nerves, and five superficial tendons. He could not flex any of the fingers of his right hand, and complained of loss of feeling in front of the fingers.

The hæmorrhage from the ulnar and muscular arteries was profuse. He was brought to hospital soon after the accident, and was placed under the influence of chloroform. Esmarch's bandage was applied to the forearm and arm to render the part bloodless. The forearm was thoroughly washed with warm carbolic lotion 2½ per cent.; the ends of the ulnar artery were ligatured; the cut ends of the radial and median nerves in the upper wound were sutured with fine chromicised catgut, and five cut flexor tendons in the lower wound were also sutured with catgut. All bleeding was arrested, except slight oozing from the cut muscles. The edges of the wound were drawn together loosely by catgut sutures; india rubber drainage tubes were inserted along the bottom of the wounds; the wounds were dressed with iodoform, iodoform gauze, and wood wool wadding; the wrist and elbow joints were well flexed by a splint applied to the back of the hand, forearm, and arm. Dr. H. L. Mackisack, house surgeon, and Messrs. J. Adrain and H. Stranaghan, my clinical pupils, assisted me with the operation.

The case progressed favourably. The temperature rose twice to 102° F.; cellulitis of the forearm occurred in a week; the swollen parts were freely incised; pus and serum escaped, and the swelling soon subsided, and he was able to leave hospital on the 17th June.

On the 4th of July (six weeks after the accident), he began to feel pain in the fingers, and could half flex them.

November 23rd.—Six months after the accident I found he had complete power of flexing the fingers, and could feel to the ends of the fingers, although the hand was easily chilled, and necessitated his wearing a warm glove on the hand in cold weather.

He is now able to attend to his duties as a baker as well as before the accident.

Remarks.—The above cases show the importance of carefully examining all severe lacerated or incised wounds occurring on parts of the body where large nerve vessels and tendons are placed; to see whether these structures are injured, and if so, have the nerves and tendons, when cut, at once carefully sutured, as well as the cut vessels ligatured. I consider it is necessary to emphasise this point as regards the early treatment of cut nerves and tendons, because often surgeons consider they have performed their duty sufficiently in the treatment of a wound when they clean it thoroughly, ligature the cut arteries, arrest the hæmorrhage, and suture the skin, and dress the wound.

It is much easier, and more likely to be successful, to suture a nerve or tendon immediately after incision, and so prevent loss of sensation and motion in the parts supplied by these structures than it is after the wound has healed, and the cut ends of the nerves and tendons have been separated by cicatricial tissue.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.K.Q.C.P.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, May 17, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	April 26.	May 3.	May 10.	May 17.		April 26.	May 3.	May 10.	May 17.
Armagh -	15·5	15·5	15·5	20·7	Limerick -	25·6	21·6	28·3	17·5
Belfast -	31·2	28·1	30·5	21·6	Lisburn -	19·3	14·5	4·8	29·0
Cork -	24·7	16·2	23·4	10·4	Londonderry	25·0	25·0	49·9	26·7
Drogheda	29·6	38·1	12·7	25·4	Lurgan -	35·9	30·8	5·1	35·9
Dublin -	21·6	25·1	23·0	22·2	Newry -	17·6	3·5	17·6	21·1
Dundalk -	30·6	13·1	34·9	21·8	Sligo -	19·2	19·2	28·9	4·8
Galway -	30·3	23·5	16·8	37·0	Waterford -	37·0	20·8	20·8	34·7
Kilkenny	33·8	4·2	21·1	25·4	Wexford -	25·7	8·6	51·3	38·5

In the week ending Saturday, April 26, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 18·5), was equal to an average annual death-rate of 20·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·2 per 1,000. In Glasgow the rate was 29·5, and in Edinburgh it was 19·8.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 25·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in seven of the districts to 6·5 in Belfast. The 139 deaths from all causes registered in that district comprise 13 from measles (being 1 over the number from that disease in the preceding week), 2 from scarlatina, 6 from whooping-cough (being equal to the number from whooping-cough for the preceding week), 2 from diphtheria, 3 from enteric fever, and 3 from diarrhœa. Among the 16 deaths in Waterford are 1 from measles and 1 from diarrhœa.

In the Dublin Registration District the births registered amounted to 190—108 boys and 82 girls; and the deaths to 149—77 males and 72 females.

The deaths, which are 56 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·0 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 21·6 per 1,000. During the first seventeen weeks of the current year the death-rate averaged 33·5, and was 1·1 over the mean rate in the corresponding period of the ten years 1880–89.

Only 13 deaths from zymotic diseases were registered, being 14 below the average for the corresponding week of the last ten years. The aggregate number of deaths from diseases of this class recorded during the last three weeks is 38, being 50 per cent. under the average for the corresponding period of the ten years 1880–89. The 13 fatal cases registered this week comprise 2 from measles, 1 from typhus, 3 from whooping-cough, 1 from diphtheria, 1 from enteric fever.

The number of cases of enteric fever admitted to hospital is 12, being a decline of 2 as compared with the admissions for the preceding week. Seven enteric fever patients were discharged, and 55 remained under treatment on Saturday, being 5 over the number in hospital at the close of the preceding week.

Only two cases of typhus were admitted to hospital, being 5 under the admissions for the preceding week. Three patients were discharged, and 10 remained under treatment on Saturday, being 1 under the number in hospital on Saturday, April 19.

The hospital admissions include also 5 cases of measles and 2 of scarlatina, against 8 cases of the former and 1 case of the latter disease admitted during the preceding week. Ten cases of measles and 12 of scarlatina remained under treatment in hospital on Saturday.

Thirty-four deaths from diseases of the respiratory system were registered, being equal to the number for the preceding week, but 9 under the average for the 17th week of the last ten years. They comprise 25 from bronchitis, 2 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, May 3, the mortality in twenty-eight large English towns, including London (in which the rate was 18·1), was equal to an average annual death-rate of 20·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was

26·9 per 1,000. In Glasgow the rate was 33·0, and in Edinburgh it was 21·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 23·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in twelve of the districts to 21·1 in Drogheda—the 9 deaths from all causes registered in that district comprising 4 from typhus and 1 from whooping-cough. Among the 125 deaths from all causes registered in Belfast are 4 from measles (being 9 under the number from that disease in the preceding week), 1 from scarlatina, 9 from whooping-cough (being an increase of 3 as compared with the number in the preceding week), and 6 from enteric fever.

In the Dublin Registration District the births registered amounted to 149—69 boys and 80 girls; and the deaths to 172—84 males and 88 females.

The deaths, which are 26 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·4 in every 1,000 of the estimated population. Omitting the deaths (numbering 2) of persons admitted into public institutions from localities outside the district, the rate was 25·1 per 1,000. During the first eighteen weeks of the current year the death-rate averaged 33·1, and was 0·9 over the mean rate in the corresponding period of the ten years 1880-89.

Twenty-two deaths from zymotic diseases were registered, being 9 over the low number for the preceding week, but 1 under the average for the 18th week of the last ten years. They comprise 1 from measles, 2 from whooping-cough, 3 from diphtheria, 4 from enteric fever, 3 from diarrhœa, 1 from erysipelas.

The number of cases of enteric fever admitted to hospital is 10, being 2 under the number for the preceding week, and 4 under that for the week ended April 19. Ten enteric fever patients were discharged, and 55 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

Five cases of typhus were admitted to hospital, being 3 in excess of the admissions for the preceding week, but 2 under the number for the week ended April 19. Four patients were discharged, 1 died, and 10 remained under treatment on Saturday, being equal to the number in hospital on Saturday, April 26.

The hospital admissions include also 6 cases of measles and 1 case of scarlatina, against 5 cases of the former and 2 of the latter disease admitted during the preceding week. Ten cases of measles and 11 of scarlatina remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 33, being 9 below the average for the corresponding week of the last ten years, and one under the number for the week ended April 26. The 33 deaths comprise 22 from bronchitis and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, May 10, the mortality in twenty-eight large English towns, including London (in which the rate was 17·3), was equal to an average annual death-rate of 19·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·2 per 1,000. In Glasgow the rate was 27·3, and in Edinburgh it was 19·0.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 25·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in nine of the districts to 8·7 in Dundalk—the 8 deaths from all causes registered in that district comprising 2 from diphtheria. Among the 136 deaths from all causes registered in Belfast are 3 from measles, 9 from whooping-cough (being equal to the number from that disease in the preceding week), 4 from enteric fever, and 3 from diarrhœa. The 28 deaths in Londonderry comprise 2 from whooping-cough, 1 from diphtheria, and 1 from enteric fever.

In the Dublin Registration District the births registered amounted to 212—114 boys and 98 girls; and the deaths to 160—88 males and 72 females.

The deaths, which are 37 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·6 in every 1,000 of the estimated population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 23·0 per 1,000. During the first nineteen weeks of the current year the death-rate averaged 32·6, and was 0·5 over the mean rate in the corresponding period of the ten years 1880–89.

Only 12 deaths from zymotic diseases were registered, being 11 below the average for the corresponding week of the last ten years, and 10 under the number for the week ended May 3. They comprise 2 from measles, 1 from scarlet fever (scarlatina), 3 from whooping-cough, 3 from enteric fever, 1 from diarrhœa.

Ten cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week. Eleven enteric fever patients were discharged, 1 died, and 53 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, May 3.

Only one case of typhus was admitted to hospital, against 5 for the preceding week. Two patients were discharged, and 9 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

The number of cases of measles admitted is 4, being 2 under the admissions for the preceding week. Three patients were discharged, 3 died, and 8 remained under treatment at the close of the week, being 2 under the number in hospital on Saturday, May 3.

Thirty-three deaths from diseases of the respiratory system were registered, being equal to the number for the preceding week, but 5 under the average for the 19th week of the last ten years. They comprise 17 from bronchitis and 13 from pneumonia or inflammation of the lungs.

In the week ending Saturday, May 17, the mortality in twenty-eight large English towns, including London (in which the rate was 17·3), was equal to an average annual death-rate of 19·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·6 per 1,000. In Glasgow the rate was 23·6, and in Edinburgh it was 15·9.

The average annual death-rate in the sixteen principal town districts of Ireland was 21·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in eleven of the districts to 10·7 in Londonderry—the 15 deaths from all causes registered in that district comprising 1 from measles, 2 from whooping-cough, 2 from diphtheria, and 1 from enteric fever. Among the 96 deaths from all causes registered in Belfast are 1 from measles, 1 from scarlatina, 4 from whooping-cough (being a decrease of 5 as compared with the number in the preceding week), and 2 from enteric fever.

In the Dublin Registration District the births registered amounted to 193—87 boys and 106 girls; and the deaths to 152—68 males and 84 females.

The deaths, which are 29 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·4 in every 1,000 of the estimated population. Omitting the deaths (numbering 2) of persons admitted into public institutions from localities outside the district, the rate was 22·2 per 1,000. During the first twenty weeks of the current year the death-rate averaged 32·0, and was 0·2 over the mean rate in the corresponding period of the ten years 1880–89.

Fifteen deaths from zymotic diseases were registered, being 3 over the low number for the preceding week, but 9 under the average for the twentieth week of the last ten years. They comprise 3 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 2 from whooping-cough, 3 from enteric fever, 1 from dysentery, 1 from diarrhœa.

An army pensioner, aged 59 years, died in the Hardwicke Hospital—certified cause of death, "Leprosy. Fatty degeneration of heart."

Thirteen cases of enteric fever were admitted to hospital, being 3 over the admissions for the preceding week. Twenty enteric fever patients were discharged, 1 died, and 45 remained under treatment on Saturday, being 8 under the number in hospital at the close of the preceding week.

Seven cases of typhus were admitted to hospital against 1 case for the preceding week, and 5 cases for the week ended May 3. Four patients were discharged, 1 died, and 11 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, May 10.

No cases of scarlatina and only 2 of measles were admitted to hospital; 5 cases of the former and 8 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 24, being 9 below the average for the corresponding week of the last ten years, and also 9 under the number for the week ended May 10. The 24 deaths consist of 14 from bronchitis, 8 from pneumonia or inflammation of the lungs, and 2 from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N. Long.* 6° 15′ *W., for the Month of May,* 1890.

Mean Height of Barometer, - - -	29·807 inches.
Maximal Height of Barometer (on 22nd, at 9 p.m.),	30·253 „
Minimal Height of Barometer (on 10th, at 9 a.m.),	29·377 „
Mean Dry-bulb Temperature, - - -	52·8°.
Mean Wet-bulb Temperature, - - -	49·7°.
Mean Dew-point Temperature, - - -	46·5°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·317 inch.
Mean Humidity, - - - - -	80·2 per cent.
Highest Temperature in Shade (on 23rd), - -	65·7°.
Lowest Temperature in Shade (on 31st), - -	39·1°.
Lowest Temperature on Grass (Radiation) (on 3rd)	33·0°.
Mean Amount of Cloud, - - - -	59·2 per cent.
Rainfall (on 17 days), - - - -	2·438 inches
Greatest Daily Rainfall (on 3rd), - - -	·456 inch.
General Directions of Wind, - - -	E., S.E.

Remarks.

Although changeable and generally showery, May, 1890, may be regarded as a favourable month both from a public health point of view and from that of agriculture. Until the 20th rain fell in frequent showers, and conditions were decidedly unsettled. After the date named, however, a succession of bright, spring-like days occurred, giving a wonderful impetus to vegetation.

In Dublin the mean temperature (53·2°) was decidedly above the average (52·0°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 52·8°. In the twenty-five years ending with 1889, May was coldest in 1869 (M. T. = 48·2°), in 1885 (M. T. = 48·7°), and in 1879 (the "cold year") (M. T. = 48·8°). It was warmest in 1868 (the "warm year") (M. T. = 55·8°) and 1875 (M. T. = 54·9°). In 1886, the M. T. was 50·5°, in 1887 it was 51·8°, in 1888 it was 52·5°, and in 1889 it was 54·6°.

The mean height of the barometer was 29·807 inches, or 0·182 inch below the corrected average value for May—namely, 29·989 inches. The mercury rose to 30·253 inches at 9 p.m. of the 22nd, and fell to 29·377 inches at 9 a.m. of the 10th. The observed range of atmospherical pressure was, therefore, 0·876 of an inch—that is, a little less than nine-tenths of an inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 52·8°, or 6·5° above the value for April 1890. Using the formula, *Mean Temp.* = *min.* + (*max.*—*min.* × ·47), the value was 52·8°, or 1·2° above the average mean temperature for May, calculated in the same way, in the twenty-five years, 1865–89, inclusive (51·6°). The arithmetical mean of the maximal and minimal readings was 53·2°, compared with a twenty-five years' average of 52·0°. On the 23rd, the thermometer in the screen rose to 65·7°—wind E.; on the 31st the temperature fell to 39·1°—wind, N.N.W. The minimum on the grass was 33·0°, on the 3rd. The rainfall amounted to 2·438 inches, distributed over 17 days. The average rainfall for May in the twenty-five years, 1865–89, inclusive, was 2·030 inches, and the average number of rainy days was 15·4. The rainfall and the rainy days, therefore, were somewhat above the average. In 1886 the rainfall in May was very large—5·472 inches on 21 days; in 1869 also 5·414 inches fell on 19 days. On the other hand, in 1871, only ·378 of an inch was measured on 9 days; in 1876 only ·798 of an inch fell on 6 days; in 1887 only ·882 of an inch fell on 10 days; and in 1888 only ·978 of an inch on 11 days. In 1889, 2·131 inches fell on 17 days.

There were no solar halos, but a lunar halo was seen at 11 p.m. of the 31st. The atmosphere was foggy on the 16th. High winds were noted on as many as 10 days, attaining the force of a gale, however, on not one occasion. Hail occurred on the 14th. The only heavy falls of rain were on the 3rd (·456 inch), on the 16th (·290 inch), and on the 19th (·270 inch). There were no electrical disturbances in Dublin, but lightning was seen on the night of the 24th.

During the month the thermometer in the screen did not fall below 39·1° (on the 31st), and on not a single night was a temperature of 32° or less recorded on the grass. The mean minimal temperature on the grass was 42·2°, compared with 42·4° in May, 1889, 37·5° in 1888, and 37·9° in 1887.

May Day (Thursday), was beautifully fine and bright. A succession of depressions then began to approach Ireland from the westward, causing unsettled weather and falls of rain. On Saturday, the 3rd, an excessively wet day, ·456 of an inch fell.

During the week ended Saturday, the 10th, changeable, somewhat showery weather, and easterly (S.E. backing to N.E.) winds, prevailed. Speaking generally, the barometer stood high over the North of Scandinavia and of Russia, whereas it was low across Central Europe. In the last named district several areas of low pressure were observed from time to time, keeping the weather in an unsettled, showery, thundery state. Tuesday, the 6th, proved fair and bright, but in the afternoon electrical cirri overspread the sky, and a thunderstorm occurred at Holyhead. In Dublin the mean height of the barometer was 29·592 inches, pressure, receding to 29·377 inches at 9 a.m. of Saturday (wind, E.N.E.) The mean temperature was 51·8°. The mean of the dry bulb readings at 9 a.m. and 9 p.m. was 51·4°. Rain fell on the six days to the total amount of ·531 inch.

Very changeable, showery weather prevailed in Ireland throughout the week ended Saturday, the 17th, where the wind generally blew from southwesterly points. In England the beginning and close of the period were unsettled, but from Tuesday to Friday inclusive it was fine, sunny, and warm. On Monday and again on Friday, the thermometer rose to 68° or 70° at the central and southeastern English stations. During the week four distinct areas of low pressure passed across Western Europe from S. to N. Of these the first travelled along the east coast of Great Britain on Sunday, disappearing to the northward of Scotland on Monday, when the second system had already arrived on the Riviera from the Mediterranean. This disturbance reached the Christiania Fiord in Norway by Thursday morning. Lastly two depressions passed northwards across Ireland in rapid succession on Friday and Saturday, causing heavy rains and squalls. In Dublin the mean height of the barometer was 29·644 inches. The mean temperature was 51·6.° The mean dry bulb temperature at 9 a.m. and 9 p.m. was 51·0°. Rain fell to the amount of ·864 inch, on six days. Hail fell on Wednesday, the 14th. Gloom and fog prevailed on Friday.

In the week ended Saturday, the 24th, at first changeable and showery, the weather finally became brilliant and summerlike, with clear skies and a cool easterly breeze. On Sunday morning rain fell in heavy showers and the wind blew freshly from S.S.E. As the day wore on, the weather improved and a depression off the S.W. of Ireland moved away over the Atlantic. On Tuesday morning another depression had advanced to St. George's Channel in an irregular direction from Spain and the Bay of Biscay. It caused heavy rains and great gloom in Ireland and the South of England. As it passed off, an area of high pressure formed over Western Europe, producing a grateful change to bright sunshine and genial warmth—and these lasted to the close of the week. In Dublin the mean height of the barometer was 29·900 inches, pressure increasing from 29·517 inches at 9 a.m. of Tuesday (wind, S.E.), to 30·253 inches at 9 p.m. of Thursday (wind also S.E.). The mean temperature was 56·1°—the mean dry bulb temperature at 9 a.m. and 9 p.m. being 55·8°. The thermometers in the screen rose to 65·7° on Friday—the maximum of the month. Rain was measured on two days—the total quantity being ·281 inch, of which ·270 inch fell in the 24 hours ending 9 a.m. of Tuesday. Faint sheet lightning was seen on the south-eastern horizon on Saturday night.

Very fine, bright weather held during the greater part of the last week (25th–31st, inclusive), Thursday, the 29th, being an exception owing to the approach of an extensive depression from the northwestward to Scotland, the South of Norway, and the North Sea. At the beginning, an anticyclone was found off the North of Scotland, while areas of low pressure were moving westwards along the southern shores of the British Islands, and a deep depression was forming over the Baltic. Thunderstorms prevailed in the Channel Islands, the S.W. of England, and the S. of Ireland. A succession of beautiful days followed until Thursday, when a depression, with several subsidiaries, approached North-western Europe from N.W. It caused clouds and rain generally and a remarkable fall of temperature, so that on Friday night ground-frost was felt at several British and Irish stations, snow and hail having already fallen in Scotland and the Hebrides. Saturday was again fine and chiefly bright. In Dublin the mean height of the barometer was 30·096 inches. The mean temperature was 52·9°. The mean dry bulb temperature at 9 a.m. and 9 a.m. was 53·4°. The thermometers in the screen rose to 64·6° on Sunday, and fell to 39·1° on Saturday. The rainfall amounted to ·242 inch, all of which fell on Thursday.

The rainfall in Dublin during the five months ending May 31st has amounted to 11·483 inches on 76 days, compared with 10·476 inches on 91 days during the same period in 1889, 9·068 inches on 69 days in 1888, 6·489 inches on 62 days in 1887, and a 25 years' average of 10·496 inches on 81·6 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in May, 1890, was 3·680 inches, distributed over 20 days. Of this quantity ·750 inch fell on the 4th, ·550 inch on the 17th, and ·400 inch on the 20th.

PERISCOPE.

SURGICAL MORTALITY.

The lessened mortality after operation in modern surgery is well shown in Mr. Polands statistics in Vol. XLV. of *Guy's Hospital Reports*, which are as follows:—

	1875–1886 per cent.	1860-1874 per cent.
Primary amputations	25·4	43·2
Secondary „	40·4	58·5
Pathological „	20·6	26·7
Expediency „	12·8	25·3

MIDWIFERY.

Of the 25,554 children born in Guy's Lying-in Hospital during the past ten years, the presentations were as follows:—

Vertex	24,590	= 96·22 per cent.
Vertex and hand	67	= 0·26 „
Breech	464	= 1·82 „
Foot or knee	224	= ·88 „
Face	80	= ·31 „
Upper extremity	35	= ·14 „
Transverse	17	= ·07 „
Brow	14	= ·05 „
Funis	63	= ·25 „

THE ANTISEPTIC TREATMENT OF PHTHISIS.

Of one hundred in-patients suffering from phthisis in St. Bartholomew's Hospital, treated by antiseptic instillations, 53 cases exhibited improvement by marked increase in weight, diminution in cough and expectoration, increase of appetite, sleep, and the like; and seven cases exhibited improvement, but without marked gain in weight. The *instillatio iodoformi* has appeared to be the most beneficial. The respirator used was the simple zinc one of Dr. Burney Yeo.

OREXIN.

Orexin (*Les Nouveaux Remèdes*, 8 Mars, 1890), a new synthetic chemical prepared by a German chemist, is not an antipyretic or hypnotic remedy, although it has a polysyllabic chemical title—phenyldihydrochinazolin. It is an appetiser, or "pick-me-up," and its name is derived from ὄρεξιν, appetite. Professor Penzoldt, of Erlangen, is reported to have good results in thirty-six cases in which he tried it. Two to ten grain doses of the drug are said to stimulate appetite and promote digestion. It is soluble in 20 to 25 parts of water at 60° F.

USE AND ABUSE OF DRAINAGE TUBES.

R. J. Godlee, F.R.C.S., sums up (*Practitioner*, February, 1890) the advantages and disadvantages of doing without drainage tubes, thus:—Without them the healing is more rapid, the scar is more uniformly linear, the chance of failing with the antiseptic element is much diminished. The disadvantages are—the temperature does not keep so absolutely normal, and there is the risk of blood or serum collecting under the flaps.

RHEUMATISM.

Those who suffer from rheumatism, sciatica, lumbago, and joint affections will be interested in knowing that minute doses—half a drop—of the tincture prepared from the fresh leaf of the *Rhus Toxicodendron*, taken thrice daily, can be depended on to relieve their pains. Dr. Aulde's patients correctly describe its effects.—*Medical News*, Nov. 9th, 1889.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Diuretin-"Knoll."

In April of the present year, Messrs. Burroughs, Wellcome, & Co. sent us a sample of theobromin-sodio-salicylate, to which the firm in question have given the shorter name, diuretin-"Knoll." Since then we have had an opportunity of testing the remedy in hospital practice, and it was of great value in 15-grain doses thrice a day, especially in a case of uræmia which threatened to prove fatal. Theobromin is related chemically and therapeutically to caffein—the correct chemical name of the latter being trimethyl-xanthin, while that of theobromin is dimethyl-xanthin. Theobromin is very sparingly soluble—1 part in about 1,600 parts of water—and is apt to cause slight nausea. Dr. Gram, of Copenhagen, as a result of therapeutical experiments conducted in the *clinique* of that city, found the most suitable form of administration to be the theobromin-sodio-salicylate, or "diuretin." It forms a white powder, which dissolves in less than half its weight of water when warmed, and remains in solution on cooling. It is of special use in affections of the kidneys and of the heart.

Caffyn's Liquor Carnis.

This novelty in the food market is described as consisting of the uncooked juice of meat, or muscle plasma, permanently preserved by the addition of a definite quantity of a carbohydrate, which at the same time increases its nutritive value and renders it a perfect food for infants and invalids. It is rich in albuminoids, but contains no excess of salts or nitrogenous waste matter. Consequently, it usually agrees and may be taken with safety by those whose digestive powers are weak. It is not a dear preparation.

One teaspoonful added to a "lemon-squash," or to one tablespoonful (more or less) of lime-juice or lemon-juice cordial, with cold water or soda water, makes a pleasant and nourishing summer drink. Milk may be substituted for lime-juice cordial, if so desired, and this will be found an equally palatable and refreshing beverage.

Toilet Lanolin.

This preparation has been introduced by the enterprising firm of Burroughs, Wellcome, & Co. It is elegantly perfumed, and is sold in compressible capsules, which are most convenient and cleanly in use.

Coca Preparations.

Messrs. Armbrecht, Nelson, & Co., 2 Duke-street, Grosvenor-square, London, have placed in our hands specimens of several of their preparations of coca leaves (*Erythroxylon coca*). First of all are samples of coca wine. This is made of five sorts—sweet Malaga, in blue cases, suitable for ladies and children; Burgundy, in red cases, for the gouty and dyspeptic; so-called "medium," in drab-coloured cases, said to be the pleasantest of all and to contain most coca; lastly, coca sherry and coca port. Besides these, there is a very palatable effervescing wine, called "Vin Mousseux de Coca," or "Coca Champagne." This costs 56s. a dozen in quarts, or 33s. a dozen in pints. It seems to be a sound wine, and is very pleasant to the palate and exhilarating.

The other preparations are the coca extract and lozenges. The former is described as a powerful nerve stimulant. In small doses (five to fifteen drops before each meal) it increases appetite and promotes digestion. In similar doses, given at bedtime, and repeated once after an hour if so required, it produces sound and refreshing sleep in cases of sleeplessness from exhaustion and fatigue. The lozenges, which are not very palatable, are recommended instead of the wine where it is not convenient to take the latter. They contain the extract of the green coca leaves, and are indicated in cases of loss of voice.

ERRATUM.

In the number of the Journal for June, 1890 (Vol. LXXXIX., No. 222, Third Series), page 510, line 10 from the top, for "*Schlafkrankenheit,*" read "*Schlaftrunkenheit.*"

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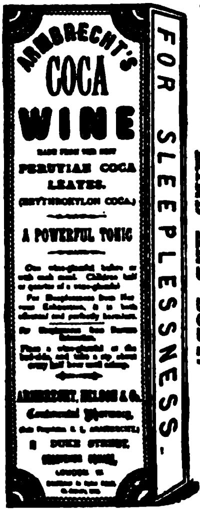

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AUGUST 1, 1890.

PART I.

ORIGINAL COMMUNICATIONS.

◆

ART. V.—*A Case of Cholecystotomy.*[a] By T. MYLES, M.D., F.R.C.S.I.; Surgeon, Jervis-street Hospital; Professor of Pathology, Royal College of Surgeons in Ireland.

THE operation of cholecystotomy is as yet sufficiently infrequent in Dublin to warrant me in bringing the present case before the notice of this section of the Academy.

Although a considerable number of cases are reported by various English surgeons, still, for some reason not very plain, but few cases—less than half a dozen I should think—have been reported from Ireland.

In the majority of cases reported, as in mine, the operation has been performed for accumulations of biliary calculi. The fact that this condition is usually associated with high feeding and good living—a combination unhappily too rare in Ireland—may explain our apparent immunity from biliary disorders severe enough to demand operative interference.

The case which I have the honour now to bring before you is simple enough, and will not make any great demands upon your patience:—

CASE.—Mrs. O'C., a stout dame, of some sixty summers, was admitted into Jervis-street Hospital in the month of November last, under the care of my friend and colleague, Dr. William Martin.

---

[a] Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on Friday, May 9, 1890. [For the discussion on this paper see page 175.]

She complained of intense agonising pain in the abdomen, not limited to any particular area, but most marked apparently beneath the xyphoid cartilage, between it and the umbilicus. When asked to describe the character of the pain she stated that it was as if her intestines were obstructed. She had no pain in the right shoulder or right arm. In addition to this frightful pain she had also incessant vomiting and straining; her bowels were obstinately constipated, not having been moved for more than a week; she was deeply jaundiced; her urine was of a porter colour; her tongue was thickly coated; and she was extremely weak and prostrate. Her temperature was never higher than 101°, and her pulse, in spite of the jaundice, was over 80 beats per minute, the usual slowing of the pulse found in such cases being entirely absent.

On examining the abdomen we found that it was acutely distended, tympanitic, and tender; the tenderness was most marked at the right of the umbilicus, below the costal cartilages. On careful palpation a small rounded tumour could be detected in this situation, but it was extremely difficult, owing to the great tenderness, to make a satisfactory examination.

My colleague, Dr. Martin, diagnosticated the case as one of impacted calculus in the bile duct, with subsequent distension of the gall-bladder, and at once suggested operative interference. After anxious consultation we decided to wait a little longer, and meanwhile try the effects of copious enemata and morphia.

The enemata, at the third attempt, brought away a copious stool, hard, clay-coloured, and fœtid; the tympany subsided, and the pain abated somewhat.

This relief, unfortunately, was only temporary, and on waking from a too short sleep, produced by large doses of morphia, she developed all her former symptoms in an aggravated form. Her condition now was truly distressing; the violent spasms of pain appeared to paralyse her vital energies; she lay on her side doubled up in bed, continually making futile efforts to vomit; her eyes were sunken, her extremities deadly cold, her pulse was barely perceptible. She besought us to do anything to end her frightful sufferings, and when, after a second consultation, it was decided to perform the operation, which my colleague, Dr. Martin, had been strenuously urging throughout, I confess I felt a twinge of horror as I looked at the frightful collapse of the patient, and thought that through lack of boldness on my part I had allowed the too valuable time to pass away, and through a caution that was almost cowardice had postponed operation until a time at which recovery from severe shock was almost impossible.

However, it was now obvious that if something were not done at once our patient had but a few hours to live, and I determined to take the risk, whatever it was, and make one effort at least to relieve her dreadful sufferings.

Chloroform having been very cautiously administered, the rigidity of the abdominal wall gave place to a flaccid condition, and we were now able with ease to make out a distinct rounded tumour behind the right rectus muscle, a little above the umbilicus. It measured apparently about two inches in diameter, and was perfectly smooth. The skin and abdominal wall moved freely over it. The tumour was dull on percussion, immobile in a vertical direction on pressure above or below, but slightly mobile from side to side. It moved slightly with the respiratory movements. The diagnosis now was much clearer, and everything being ready, with the kind assistance of the President and my colleagues, I made an incision through the skin exactly over the tumour about three inches long, parallel to the linea alba, and about one inch to its right side. Going boldly through the fibres of the right rectus muscle, I struck across the anastomotic arch between the interior mammary and epigastric, without wounding it, fortunately. The artery was tied in two places and divided between the ligatures. Continuing the dissection, the posterior sheath of the rectus was exposed and carefully opened, there being no hæmorrhage. The peritoneum was carefully cut into, and to my intense delight the gall bladder sprang into the wound—yellow, tense, smooth, and elastic. Hot sponges were now packed into the wound, and a large one over the gall bladder.

Putting my finger and thumb into the wound I grasped firmly the neck of the bladder and steadied it. I now thrust a fine aspirator needle into it, and drew off a considerable quantity of perfectly clear mucus. The tumour now collapsed, and the calculi could be distinctly felt through its wall. Still steadying the bladder with my left index finger and thumb, I cut into its summit freely enough to admit nearly two fingers. Putting my finger into the gall bladder I began to turn out the calculi, which I have now the honour to exhibit to you. They number twenty-five.

The President of the College very kindly kept the tally until the number reached twenty, and then he gave it up. The bladder being now empty, I determined to explore the duct.

Having secured the edges of the gall bladder by a pair of clip forceps, I gave them to my colleagues, Messrs. Dwyer and Cranny, and urged them to keep the bladder drawn well forward through the wound, and thus in a slight degree straighten out the duct. I now removed the sponges from the abdomen, and, first warming my hand by dipping it in warm water for a few minutes, I passed my entire hand through the abdominal wound. Running my fingers carefully along the cystic duct, I could find nothing. I then passed my index finger into the foramen of Winslow, and began to explore the common duct from above downwards. Just at the extreme limit to which I could reach, behind the first part of the duodenum, I felt another calculus. For a while I made ineffectual efforts to dislodge it by pressure from behind. At length I determined to try to use both index fingers, and with my left in front, steadying the first part of the duodenum, I made vigorous pressure from below upwards on the posterior aspect of the duct with my right. After a few minutes I felt the stone yielding, and then to my great joy it moved rapidly upwards and was easily coaxed along the cystic duct into the gall bladder. Another careful exploration was made, but nothing further could be discovered.

Hot sponges were now again packed into the wound, and I hastened to complete the operation.

Grasping the cut surface of the parietal peritoneum, I carefully sutured it to the edges of the skin wound with a number of interrupted silk sutures; the wound in the gall bladder was temporarily plugged with a small sponge, and the nozzle of the irrigator thrust far down into the abdomen. A stream of warm boracic lotion—temp. 100° F.—was now sent through the abdominal cavity and allowed to flow continuously for several minutes; this seemed to have a very stimulating effect on the respirations, which became deep and regular. The lower part of the wound was now closed by a double row of sutures, the deeper through peritoneum alone, the superficial through everything except peritoneum. To the open upper end of the wound the cut edges of the gall-bladder were fixed, so as to make a fistulous opening into the bladder; a drainage-tube was now fixed in that viscus, and the entire wound freely dusted with iodoform. A large pad of antiseptic wool and abdominal bandage finished the dressing, and the operation was complete.

She was now taken back to bed, still very collapsed, but on recovering from the chloroform she stated that she was nearly free from pain. A hypodermic injection of morphia was now given, and hot bottles packed around her. Her temperature after the operation was 97°, and her pulse so weak that I could not estimate its rapidity.

Teaspoonfuls of champagne containing a little brandy were given her, and hot flannels placed over the cardiac area.

On the following morning she had rallied somewhat, but was still very weak.

I will not weary you with details of her condition and treatment from day to day, but will merely speak of what I believe will be of general interest and utility.

For four days after the operation the urine still remained porter-coloured, and the jaundice deep. After that time the colour began to fade, and we looked anxiously for a movement from the bowels. On the 5th day, as there was still no movement, a large soap and water enema was administered, but it failed to produce any result. We then discovered that the rectum was packed with hardened fæces, necessitating removal with fingers and scoop. After this an enema produced a copious stool, with great pain and tendency to collapse, but the stool was still completely devoid of bile. Two days after this repeated small doses of magnesium sulphate brought about a good stool containing bile. From that date the bile continued to increase in the stools and disappear from the urine.

Throughout all this period bile was escaping from the wound freely; at first I merely used a short drainage-tube, but as I found that the fluid soaked through the dressings, I substituted for it a long tube with a short piece of bent glass tubing as a connecting link—one end was of course in the gall bladder, kept in position by a transverse piece of adhesive plaster; the other was in a basin by the bedside, and into this basin all the bile flowed and could be collected.

I may mention here what is, I think, worthy of notice—namely, that during the first four days, while the bile was flowing freely from the wound, the urine was still dark-coloured, and contained bile in abundance. It is perhaps possible that this bile in the urine was only what had previously been absorbed into the blood, and which now took four days to be eliminated. It is, on the other hand, impossible to believe that after the operation, with a large open wound in the gall-bladder, any appreciable quantity of bile could have been absorbed by the hepatic capillaries.

The wound healed rapidly, and after the 14th day, with abundance of bile in the stools, I removed the drainage-tube and allowed the fistula to close. When everything seemed at its fairest, however, she got an attack of gastritis, the result of well-meant, but dangerous, kindness on the part of her relations, who smuggled into the hospital a quantity of indigestible food, which she greedily devoured.

The bile again burst from the wound and disappeared from the stools; jaundice again appeared, and she seemed in a fair way to relapse into a condition but little better than that from which she had just been rescued.

A large dose of calomel, followed by the rose mixture of the hospital, and three days' starvation diet, however, brought relief, and from that on she progressed, without a single bad symptom, until she finally left the hospital five weeks after the operation with the wound *completely* closed and perfectly free from all trace of the terrible illness through which she had passed.

I regret to say that no accurate record of the amount of the bile passed daily through the tube was kept. My idea is that the average quantity varied from 10 to 15 ounces. Prof. Purser tells me that recent investigations show that the amount of bile secreted daily may be estimated at 4 oz. per 14 lbs. of body weight. On this calculation my patient ought to have voided 50 oz. of bile per diem. Although I do not know exactly the amount she passed, I am quite certain that half this amount would more than represent the quantity of bile she discharged daily through the tube.

Another point of interest is the colour of the bile, the beautiful golden yellow described by writers on Physiology was conspicuous only by its absence, and in its place a very dark olive-green coloured fluid was to be seen.

Evidently bilirubin does not exist in fresh bile, but is produced from biliverdin by reduction in the intestine.

Before closing my paper I would like to say a few words about the operation itself, its advisability and technique.

That the operation is justifiable few will deny; the result of an ever-widening experience by surgeons in all countries has proved beyond doubt that in appropriate cases it offers not merely a means of prolonging an invalid existence, but of restoring a patient to full vigour and active health.

The real crux of the question is—Can we guarantee against a permanent biliary fistula resulting from the operation? It has been asserted by distinguished surgeons that such a result is compatible with health and longevity, and that all our previously held views as to the functions of the bile must be erroneous; that, in fact, instead of a useful fluid it is entirely excrementitious.

With this view, however, attractive though it be by its boldness and utter disregard for clinical and experimental experience, I cannot quite agree. The experience of commonplace everyday practitioners is that obstructive jaundice is invariably associated with constipation, wasting, and fatty stools. Experimental physiology shows us that bile plays an important *rôle* in the digestion of fats, and the fact that the bile duct in almost all animals opens in almost the same situation is another proof of its universal importance and utility. No, I would say that the possibility of a permanent fistula is a dark shadow over the operation, and however we may gloss it, it must be regarded as a disaster; and an operation with such a finale can only be regarded as in a minor degree a success.

The next question I would ask is—Ought the wound to be closed at once, and should we trust to the bile finding its way along the cleared channel into the intestine? To this I would answer in the negative. We ought not to close the wound at once, and my reasons for saying this are twofold—1st. We can never be absolutely sure that the entire channel is cleared; the narrowest part of the duct, where a stone is most likely to lodge, is the most inaccessible—namely, that part which lies between the pancreas and duodenum. A stone lodged here could not be felt in the first place, and I doubt, if even it were felt, it could be removed by any methods yet devised, except by the very unreliable one of injecting fluids capable of dissolving the concretion.

Again, even though all the concretions be removed from the channel, the wall of the duct must necessarily be paretic for some days after and incapable of propelling the fluid against the resistance offered by the obliquely-penetrated wall of the duodenum, and thus bile would still accumulate above the obstruction, and the phenomena for which the operation had been undertaken would recur with their original virulence.

Finally, in the modified operation it has been clearly proved that when the channel is free the external wound heals without any difficulty.

Before concluding my paper, I would wish again to say that the credit of the accurate diagnosis belongs entirely to my colleague, Dr. Martin, and that his urgent solicitations and earnest support, together with the kind and valuable co-operation of my colleagues, encouraged me to undertake an operation hazardous in the highest degree, but happily carried to a successful issue. My thanks are also due to our two House Surgeons, Drs. Mills and Hughes, and to my pupils, Mr. (now Dr.) Kearney and Mr. Ryan, for the unremitting care and attention they bestowed upon my patient during the anxious days that followed the operation.

ART. VI.—*On the Relations existing between Intestinal Tuberculosis and Stomachic Alterations in Pulmonary Tuberculosis.* By DR. MARIN ROUSSEFF. Translated by C. G. CUMSTON, of Geneva.

IT is a generally known fact that in individuals having pulmonary tuberculosis, concealed or manifest, gastric complications are often observed. In some cases they appear to precede that disease, while in others they accompany it, or develop during its course. These gastric affections, important in many ways, merit a careful study; this is what we propose in this memoir. Unfortunately, we cannot embrace all the different varieties in this study. For example, the form appearing especially in young people cannot enter into this paper; we shall confine ourselves to two varieties which are observed in the course of manifest pulmonary tuberculosis, these are particularly the gastric affections of tubercular nature, which are followed or accompanied by intestinal lesions. The method that I followed in these investigations is as follows:—Immediately after the autopsy of each individual whose death was caused by tuberculosis, I took the stomach and intestine, which were closely examined so as to detect any lesions visible to the naked eye. The size of the stomach and the thickness of its walls were noted, as also any existing gastritis, ulcerations, or cicatrices. I then made minute examinations of the intestine for hypertrophied follicles, tubercles, or tubercular ulcerations. I took into consideration their number, form, and extent, also their depth, and the state in which I found them. After this was done I cut from the stomach two pieces—one from the fundus and the other from the pyloric region. They were then hardened in a solution of bichromate of potassium, and afterwards washed and dehydrated in a mixture of equal parts of alcohol and ether; then, after confining them in celloïdin, the microscopical sections were made. These were stained in the commencement by picro-carmin, so as to see distinctly the connective tissue. For staining the nucleus and round cells I employed the "carmin à l'alun." Later on I substituted for this method the double staining of Böhmer, combined with eosin. This latter method, employed by Schwalbe,[1] [a] and praised by him, served me very well. The 34 cases in which I made my investigations have now to be given *en résumé.* As to the clinical observations, I would insist only on the age, sex, profession, length of the disease, and the gastric or gastro-intestinal troubles that the patient presented during life. In the autopsy I attach the greatest importance to the degree of the pulmonary lesion, the state of the stomach and intestines. Lastly, in the microscopical examinations, I insist strongly on the interstitial lesions of the mucous membrane and glands for reasons to be mentioned further on.

CASE I.—H. G., schoolmaster, aged twenty-six; health always good as well as hygiene; no history of alcoholic excess. Duration of disease, three and a half months; no gastro-intestinal symptoms.

Autopsy, Oct. 19, 1889.—Both lungs greatly infiltrated with tubercles, and presenting cavities at the apex. Stomach of normal size, walls thin; small and large intestines normal.

Microscopical Examination of the Stomach.—No lesions of the glands or connective tissue of the mucous membrane, which is not infiltrated with round cells.

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[a] The numerals refer to the List of Works given at the end of this paper.

Case II.—P. L., housewife, aged forty-two; habitually good health, fair hygiene; no alcoholic excess. Disease lasted two years; no gastro-intestinal complications.

Autopsy, Oct. 19, 1889.—The superior lobes of both lungs are occupied by cavities and tubercles, the left lung is nearly destroyed; stomach a little enlarged, thickness of its walls normal; mucous membrane pale. Hyperæmia of the small intestine, where a small, non-ulcerated tubercle is found; on the ileo-cæcal valve are found two small ulcerations, nearly cicatrised; large intestine is normal. Microscopical examination revealed a slight infiltration of round cells at the base of the mucous membrane. The glands are normal in the region of the *cul-de-sac*, and slightly dilated in the pyloric region. The connective tissue shows nothing in particular.

Case III.—C. A., aged forty-one; bad hygiene, bad health; excess in morphin injections; hysteria. Disease lasted some years, during which the patient presented many gastro-intestinal troubles. She had, above all, sharp pains in the stomach after meals and bad diarrhœa.

Autopsy, Nov. 2, 1889.—Both lungs contain masses of caseation and cavities; amyloid degeneration of the spleen, liver, kidneys, and *stomach*. This last organ, of normal size, presented an hyperæmia of the mucous membrane, which was also mammillated. The small intestine showed an excessive hyperæmia; in the large intestine are found several large ulcerations, having a diameter of more than 10 cm. in the longitudinal direction; they extend to the peritoneum, and present all the characters of tubercular ulcerations.

Microscopical Examination of the Stomach showed a thickening of the connective tissue at the base of the mucous membrane, insinuating between the glands, separating them and reaching the surface; quite a marked infiltration of round cells is also noticed at the base of the mucous membrane. The glands greatly atrophied, the nucleus of their cells does not stain. The muscular tunic of the vessels of the mucous membrane presents a marked amyloid degeneration.

Case IV.—M. A., hat-maker, aged thirty-five; health habitually good, bad hygiene. Disease lasted eight months, and the patient presented gastro-intestinal symptoms; anorexia and diarrhœal stools.

Autopsy, Nov. 11, 1889.—In both lungs are found isolated or confluent tubercles; miliary tubercles in the spleen and liver. Stomach dilated to a great extent, its walls are thin, and the mucous membrane displays a distinct venous hyperæmia. Several ulcerations of different sizes and shapes, extending to the peritoneum, are found in the small and large intestine.

Microscopical Examination of the Stomach.—The mucous membrane presents at its base a plentiful infiltration of round cells; these enter into the sub-mucous coat in different parts. The muscular layer of the mucous membrane is also infiltrated, and appears thickened. The glands are slightly dilated.

Case V.—P. died on arriving at the Cantonal Hospital.

Autopsy, Nov. 14, 1889.—The apices of both lungs are occupied by cavities, and the inferior lobes are filled with gray granulations. Stomach rather small, normal thickness; mucous membrane hyperæmic. In the inferior part of the small intestine are several ulcerations the size of a franc or a two-franc piece, extending to the peritoneum.

Microscopical Examination of the Stomach.—Considerable cellular infiltration of the mucous membrane; here and there this infiltration rises from the base to the surface, and descends to the submucous tissue. The glands are slightly dilated.

Case VI.—C. J., waiter, aged twenty-seven; habitually good health, very bad hygiene; excess in drinking (red wine, beer, absinthe). Disease lasted five months; many gastro-intestinal symptoms, dilatation of the stomach, vomiting, anorexia, irregular and diarrhœal stools.

Autopsy, Nov. 25, 1889.—Both lungs are filled with cavities and caseous centres. A very dilated stomach, with hyperæmic and mammillated mucous membrane. The inferior part of the small intestine is occupied by several ulcerations of different sizes, arrived at the most advanced stage.

Microscopical Examination of the Stomach.—Copious infiltration of round cells in the entire extent of mucous membrane, extending in places to the submucous tissue. The connective tissue is well developed, and separates the glands; these are slightly dilated, and their cells atrophied. A marked hyperæmia by stagnation is remarked. The vessels are dilated not only in the submucous tissue, but also in the mucous membrane itself.

Case VII.—B. C., seamstress, aged forty-three. Good health previously. fairly good hygiene. Disease lasted thirteen months; gastro-intestinal troubles, anorexia, vomiting, bad diarrhœa.

Autopsy, Dec. 2, 1889.—In the apex of both lungs are a few cavities, and many gray granulations. The stomach is very large, walls thin; hyperæmia of the mucous membrane, and in the pyloric region are some ecchymotic spots. Small intestine thin, with very marked hyperæmia, with several ulcerations of different sizes.

Microscopical Examination of the Stomach.—In the pyloric region exists a great proliferation of connective tissue, extending quite high up between the glands. Here and there are to be found pigmentations of the mucous membrane, caused by former extravasation of blood.

Case VIII.—V. E., gardener, aged twenty-three; good health previously, hygiene quite good. Duration of disease, thirteen months; gastro-intestinal troubles, loss of appetite, and bad diarrhœa.

Autopsy, Dec. 5, 1889.—Both lungs are filled with cavities. Amyloid degeneration of liver, spleen, kidneys, and *stomach*, which is very dilated, with thin walls; its mucous membrane is hyperæmic, and presents small ecchymoses. The entire small intestine is very hyperæmic, and covered with ulcerations of different sizes, which occupy about two-thirds of all the intestinal mucous membrane. These ulcerations are filled with blood-clots, which are also observed in the large intestine.

Microscopical Examination of the Stomach.—The proliferation of connective tissue extends between the glands, and reaches the surface. Copious infiltration of round cells; hypertrophy of the glands. The muscular tunic of the vessels of the mucous membrane presents an amyloid degeneration.

Case IX.—J. A., labourer, aged thirty-five; had always enjoyed good health, no hereditary antecedents of tuberculosis. Duration of disease, eleven months; digestive system normal.

Autopsy, Dec. 12, 1889.—In both lungs a copious tubercular infiltration and several cavities. Stomach a little large; walls thin, and mucous membrane pale. The intestine, very narrow at its superior part, is quite normal.

Microscopical Examination of the Stomach.—Glands and their cells entirely normal; no round cells in the connective tissue, which presents nothing in particular.

Case X.—C. C., house-wife, aged sixty-one. Bad hygiene; alcoholic excess. Duration of disease, thirteen months; gastro-intestinal troubles.

Autopsy, Dec. 16, 1889.—A large cavity in the left lung; tubercles scattered about in the right lung. A very small stomach, with walls of normal thickness; its mucous membrane thickened and mammillated. In the large and small intestines are found many ulcerations of different sizes.

Microscopical Examination of the Stomach.—Slight proliferation of the connective tissue of the mucous membrane, with cellular infiltration. Glands are a little dilated, and contain hyaline masses, which took the form of brilliant corpuscles—could not be stained black by osmic acid, or yellow by a solution of iodine. A venous stagnation is seen, not only in the submucous tissue, where the vessels are very dilated, but also in the mucous membrane, where it reaches the surface in certain parts.

Case XI.—P. L., boot-stitcher, aged thirty-five; entered the Cantonal Hospital, Aug. 24, 1889, for a spinal meningo-myelitis, without any appreciable lesion of the lungs. During her stay at the hospital she contracted a tuberculosis.

Autopsy, Dec. 23, 1889.—Sclerosis of the antero-lateral columns; atrophy of the gray substance of the cord. The right lung is infiltrated with tubercles without cavities; the left presents at the apex a few small cavities. Stomach of normal size and thickness; its mucous membrane thickened, presents long longitudinal folds, and is in a very mammillated condition. The intestine shows several ulcerations the size of a franc piece.

Microscopical Examination of the Stomach.—The cellular tissue at the base of the mucous membrane much developed, insinuating itself between the glands, which are dilated so as to form large cysts lined with cylindrical cells. Copious stagnation of blood, with vascular dilatation in the mucous and submucous membranes.

Case XII.—G. A. arrived at the hospital in agony; no clinical observations.

Autopsy, Jan. 11, 1890.—Cavities in both lungs, stomach normal in size; slight hyperæmia of the mucous membrane; nothing else. The intestine in its entire length is normal.

Microscopical Examination of the Stomach.—No infiltration of round cells; glands and connective tissue present nothing in particular.

Case XIII.—V. F., farmer, aged thirty-nine; previous health good. Duration of disease, five months; gastro-intestinal troubles towards the end of the illness.

Autopsy, Jan. 17, 1890.—Both lungs greatly altered; stomach dilated, walls thin; mucous membrane presenting folds and a decided mammillated state, with hyperæmia. The mucous membrane of the small intestine covered with hypertrophied follicles and ulcers. The ileocæcal valve and the bottom of the cæcum are occupied by several large ulcerations, extending to the peritoneum.

Microscopical Examination of the Stomach.—The cellular tissue at the base of the mucous membrane is very developed; there is also seen, especially on the surface, an infiltration of round cells. In the submucous tissue exists a copious stagnation of blood, but the vessels are not dilated.

Case XIV.—Z. A., washerwoman, aged twenty-four; no information as to past life.

Autopsy, Jan. 18, 1890.—Pneumothorax on the left side, produced by rupture of an emphysematous pulmonary vesicle, but no cavities on this side. The right apex occupied by a cavity and numerous gray granulations. Some tubercles in the kidneys; spleen and liver normal. Stomach normal in size and thickness, with a pale mucous membrane. Large and small intestines normal.

Microscopical Examination of the Stomach.—Glands normal, their cells distinct; a slight acute interstitial gastritis is found, characterised by a slight infiltration of round cells, and by the presence of blood pigment in the mucous membrane. The vessels are normal.

Case XV.—C. J., locksmith, aged forty-five; has always enjoyed good health and hygiene; no gastro-intestinal troubles. Duration of disease, five years.

Autopsy, Jan. 18, 1890.—Both lungs contain intercommunicating cavities. Some tubercles in the kidneys; spleen and liver normal. Stomach small, thickness of walls normal, with pale and mammillated mucous membrane. The small and large intestines are quite normal.

Microscopical Examination of the Stomach.—The glands are well preserved; normal connective tissue; no blood stagnation.

Case XVI.—B. F., engraver, aged forty-five; health previously good; no alcoholic excess; good hygiene. Duration of disease, one year; no gastro-intestinal trouble.

Autopsy, Jan. 20, 1890.—Both lungs contain cavities and masses of caseated tubercles. Stomach of normal size and thickness, with a pale mucous membrane; hyperæmia of intestine, otherwise normal.

Microscopical Examination.—Glands well preserved; no infiltration of round cells; no abnormal development of connective tissue.

Case XVII.—P. J., labourer, aged forty-four; alcoholic. Entered the Cantonal Hospital, Feb. 26, 1888, for dilatation of the stomach and chronic gastritis. No appreciable lesions upon auscultation; gastric troubles very marked; loss of appetite, nausea, and vomiting. During his stay at the hospital contracted tuberculosis.

Autopsy, Jan. 23, 1890.—Two cavities in left lung; some tubercles without cavities in the right. Parenchymatous nephritis; stomach very dilated, with excessively thin walls; copious hyperæmia and very mammillated mucous membrane. Very near the pylorus is found a round cicatrix, having a diameter of 2 cm. Copious hyperæmia of small intestine; near the ileo-cæcal valve are several ulcerations and tubercles non-ulcerated. The large intestine presents an abundant hyperæmia.

Microscopical Examination of the Stomach.—Abundant infiltration of round cells in the entire mucous membrane; connective tissue very developed. Copious stagnation in the sub-mucous and mucous membranes. Glands more or less atrophied, but not dilated.

Case XVIII.—M. G., stove-maker, arrived at the Cantonal Hospital Jan. 18, 1890, and died before he could be questioned. The symptoms of meningitis were attributed to either alcoholism or tuberculosis.

Autopsy, Jan. 25, 1890.—Tubercular meningitis; cavities at the apex of both lungs, with tubercular infiltration and broncho-pneumonia in the middle and inferior lobes. Stomach of normal size, very thin; its mucous membrane very mammillated, with hyperæmia. In the small intestine, on the valve, and in the large intestine, are found several ulcerations.

Microscopical Examination of the Stomach.—Connective tissue quite developed at the base of the mucous membrane; copious infiltration of round cells throughout the entire mucous membrane. Glands slightly dilated; vessels injected, but not dilated.

Case XIX.—M., no clinical observation.

Autopsy, Jan. 30, 1890.—Pulmonary tuberculosis; vertebral caries. Stomach a little enlarged, mucous membrane pale, not mammillated; in the pyloric region a round cicatrix of 1 cm. in diameter. Intestine normal in its entire length.

Microscopical Examination of the Stomach.—Glands well preserved; no infiltration of round cells in the connective tissue, which presents nothing in particular.

Case XX.—M. L., carpenter, aged twenty-seven. Duration of disease, two years; arrived in a dying condition at the hospital, Feb. 1, 1890.

Autopsy, same day.—Cavities in both lungs; stomach very dilated, walls thin; mucous membrane with marked hyperæmia, vessels dilated and injected. Nothing to be noted in the small intestine; in the large intestine a patch of ulcerations, and several abscesses, containing a whitish-yellow pus, in the submucous tissue. The form and size of these abscesses is that of a large French bean, situated transversely under the intestinal mucous membrane.

Microscopical Examination of the Stomach.—The connective tissue is quite developed; atrophy of the glands, their nucleus strongly pigmented, and of a yellowish colour; blood-corpuscles are found in the ducts of the glands. Copious blood stagnation in the mucous and sub-mucous membranes; vessels exceedingly dilated. Hyaline corpuscles in number are found in the mucous membrane, due to an abnormal secretion or hyaline degeneration of the glands.

Case XXI.—B. F., lock-smith, aged twenty-seven; good hygiene. Duration of disease, three years.

Autopsy, Feb. 4, 1890.—Cavities in both lungs; stomach of normal size, but thin. Some small ulcerations healing up, in the small intestine. Valve and large intestine normal.

Microscopical Examination of the Stomach.—No infiltration of round cells; glands present a marked state of tumefaction, especially at the base of the mucous membrane; their cells are granular, tumefied, do not stain, and cannot be distinguished one from another.

Case XXII.—E. T., aged forty, farm-hand; admitted in delirium, Jan. 28, 1890. No observation.

Autopsy, Feb. 5, 1890.—Cavities in right apex, tubercular infiltration of left apex; broncho-pneumonia of left base. Stomach small, normal thickness; hyperæmia of mucous membrane. Some ulcerations in the inferior part of small intestine, nothing in the large.

Microscopical Examination of the Stomach.—Slight infiltration of round cells at the base; vessels dilated with slight venous stagnation. Glands not very modified.

Case XXIII.—D. L., aged twenty-seven; always good health; alcoholic excess. The patient has made several *séjours* at the hospital for chronic alcoholic gastritis. Many gastric troubles; excessive anorexia; can tolerate only milk. Disease lasted four years.

Autopsy, Feb. 10, 1890.—Both lungs infiltrated with tubercles, and presenting several cavities. Stomach rather small, walls thin; marked hyperæmia of mucous membrane, which is very mammillated. Everywhere on the surface of the small intestine are seen numerous ulcerations; the large intestine is also covered—in a surface of 60 cm. are found thirty ulcerations, some of which are very large.

Microscopical Examination of the Stomach.—Infiltration of round cells at the base of the mucous membrane; glands present a cloudy swelling, but what is most remarkable is the great dilatation of the vessels, and copious blood stagnation in the mucous and submucous membranes. The dilated vessels are visible with the naked eye, their walls very thick.

Case XXIV.—E. F., housewife, aged forty-two; previous health good; bad hygiene. Duration of disease, two years; many gastro-intestinal troubles, loss of appetite, vomiting, and diarrhœa.

Autopsy, Feb. 10, 1890.—Cavities in both lungs; stomach dilated and thin; mucous membrane pale and very mammillated. The ileo-cæcal valve and the rest of the large intestine are occupied by several ulcerations of different sizes.

Microscopical Examination of the Stomach.—Infiltration of round cells at the surface and base of the mucous membrane. Connective tissue well developed between the glands, which present a cloudy swelling.

Case XXV.—G. J., *valet de chambre*, aged seventy-six. Duration of disease, three months; great loss of appetite.

Autopsy, Feb. 13, 1890.—Both lungs are infiltrated with tubercles without cavities. Stomach small, normal thickness; copious hyperæmia of the mucous membrane, which is very mammillated. In the small intestine, cæcum, and large intestine are several ulcerations extending to the serous membrane.

Microscopical Examination of the Stomach.—Connective tissue of the mucous membrane is so developed as to choke the glands. Copious infiltration of round cells in the entire mucous membrane.

Case XXVI.—B. F., mason, aged thirty. Duration of illness, five months; diarrhœa some days before death.

Autopsy, Feb. 13, 1890.—Cavities in both lungs; stomach of normal size, with a pale mucous membrane, presenting folds. Hypertrophy of Peyer's patches in the small intestine; the follicles form gray tumours, while some are ulcerated (recent tuberculosis). Nothing in the large intestine.

Microscopical Examination of the Stomach.—Glands present a marked cloudy swelling; granular cells, which cannot be distinguished separately. Blood extravasation in the mucous membrane.

CASE XXVII.—C. G., labourer, aged fifty-one; previous health good. Duration of disease, thirteen months; no gastro-intestinal troubles.

Autopsy.—Feb. 15, 1890.—Cavities in both lungs; stomach dilated. Hyperæmia of the mucous membrane; intestine normal in entire length.

Microscopical Examination of the Stomach.—Glands and connective tissue normal; blood extravasation in the mucous membrane, but no dilatation of vessels.

CASE XXVIII.—A. F., washerwoman, aged thirty-eight; previous health bad; bad hygiene. Duration of illness, five years. Gastro-intestinal troubles.

Autopsy, Feb. 17, 1890.—Cavities in both lungs, and great infiltration of tubercles; stomach of normal size, thin; hyperæmia of mucous membrane; several large ulcerations in the intestine.

Microscopical Examination of the Stomach.—Abundant proliferation of connective tissue; infiltration of round cells at the base of the mucous membrane, in some spots passing to the submucous tissue. Marked atrophy of the glands, their cells small, pigmented, and granular.

CASE XXIX.—C. B., shoe merchant, aged thirty; bad hygiene, misery. Duration of disease, six months. Very bad gastro-intestinal catarrh.

Autopsy, Feb. 17, 1890.—Cavities in both lungs; stomach of normal size, very thin; mucous membrane mammillated, with hyperæmia. In the entire length of the small and large intestine are found ulcerations of different sizes. (There is more ulcerated than healthy surface).

Microscopical Examination of the Stomach.—Copious infiltration of round cells, extending from the base to the surface of the mucous membrane. Glands slightly atrophied; vessels very injected.

CASE XXX.—B. A., servant, aged nineteen; previous health good. Duration of disease, six months. Severe gastric troubles.

Autopsy, Feb. 20, 1890.—Enormous cavity in left lung; the right lung is filled with caseous collections. Stomach very dilated, walls thin; mammillated mucous membrane. Several small ulcerations in the small intestine; the ileo-cæcal valve and the cæcum are entirely ulcerated.

Microscopical Examination of the Stomach.—Atrophy of the glands which are separated by connective tissue of ancient date. A very copious infiltration of round cells in the entire mucous membrane; this infiltration is found around the vessels of the submucous tissue.

Case XXXI.—Washerwoman, aged thirty-two; alcoholic excess; bad hygiene. Duration of disease, thirteen months; severe gastric troubles.

Autopsy, March 13, 1890.—Cavities in both lungs; stomach of normal size; very mammillated mucous membrane, with hyperæmia. Several large ulcerations in the small and large intestines, destroying completely the ileo-cæcal valve.

Microscopical Examination of the Stomach.—At the base of the mucous membrane and between the glands is a great development of connective tissue of ancient date, also a slight infiltration of round cells; copious blood stagnation in the submucous tissue, especially in the pyloric region.

Case XXXII.—H. E., barber, aged eighteen; previous health good. Duration of disease, four months.

Autopsy, March 27, 1890.—Cavities in both lungs; some tubercles in the kidneys; spleen and liver normal. Stomach of normal size and thickness; hyperæmia of mucous membrane. On the ileo-cæcal valve are two small ulcerations, nearly healed.

Microscopical Examination of the Stomach.—Pronounced cloudy swelling of the glands; the capillaries of the mucous membrane excessively dilated; copious extravasation and blood stagnation in the mucous membrane.

Case XXXIII.—X., no clinical observations.

Autopsy, March 22, 1890.—Lungs filled with cavities; stomach very small; hyperæmia of mucous membrane, with great dilatation of the vessels, but not mammillated; some small ulcerations and non-ulcerated tubercles in the small intestine; large intestine normal.

Microscopical Examination of the Stomach.—Infiltration of round cells on the entire surface of the mucous membrane; glands not very modified.

Case XXXIV.—J. S., aged forty-two, has had severe intermittent fever at two different times. Duration of disease, twenty months; gastric troubles.

Autopsy, March 24, 1890.—Cavities in the left lung; spleen and kidneys contain some tubercles; excessive dilatation of stomach, walls very thin; hyperæmia of mucous membrane, which is mammillated. Some large ulcerations of small intestine; large intestine normal.

Microscopical Examination of the Stomach.—Great development of connective tissue at the base of the mucous membrane, entering between the glands, which present a cloudy swelling. Blood stagnation in the connective tissue of the mucous membrane.

En résumé, we found in the cases examined—1st. Dilatation of the stomach. In the 34 cases I found 13 in which the stomach was of normal size; 7 in which the organ was greatly inferior in size to the normal—small, contracted; in the 14 other cases the stomach always went beyond the normal measurements, and sometimes even was extremely dilated (I would here state that in some of the cases the dilatation of the organ existed before the pulmonary tuberculosis). 2nd. A mammillated state of the gastric mucous membrane. This condition, which is a sign of chronic gastritis (Louis),[2] was well marked in 13 cases. In the patients where it was found there had been alcoholic excesses, circulatory derangements of the stomach, or a bad alimentary hygiene. This condition permits of judging with a certain exactitude the intensity of the gastritis; the more pronounced it is, the more considerable are the lesions found under the microscope. Nevertheless, this sign is neither infallible nor always present; the mammillated condition of the mucous membrane may be wanting and yet with the microscope a gastritis is detected.

If we now pass to the microscopical examination of the stomach, we remark that the principal lesions are always to be found in the internal lining—namely, the mucous membrane. To be more explicit I will describe the lesions that are to be found in each part constituting the mucous membrane—namely, glands, vessels, and connective tissue.

1. *Glands.*—Generally, all agree that the gastric juice and cadaveric putrefaction work quickly in attacking at least a part of the mucous membrane, and sometimes even causing complete destruction (auto-digestion). For this reason the exactitude of the experiments of Wilson Fox[3] and Joseph Loquin[4] cannot be admitted. These two gentlemen examined for the first time under the microscope the gastric lesions of phthisical patients, but the stomachs examined were those of subjects dead for a certain length of time. So as not to expose myself to the same reproach, I would hasten to state that if the epithelium has disappeared in my preparations, the glands were always well preserved. Where the intestinal tuberculosis was in company with the pulmonary, I always found a more or less pronounced modification of the glands; sometimes a a cloudy swelling with all its characters, in others a marked pigmentation, and sometimes a granular condition of the cells, &c. Twice only I found the gastric glands containing hyaline collections, an evident symptom of abnormal function of these glands. But the glandular changes, which are lasting, and which have a much greater value, because they always exist in chronic gastritis, are *dilatation* and *atrophy*. Dilatation exists in two forms, general

dilatation of the glands, which is more or less pronounced, and which I encountered in seven of my preparations, and partial dilatation, the glands forming veritable cysts. Atrophy, like dilatation of the glands, accompanies chronic gastritis, and was found eight times.

2. *Connective Tissue.*—I observed a more or less marked proliferation of connective tissue in 15 of my cases. This proliferation commenced nearly always at the base of the mucous membrane ascending between the glands, separating them, and sometimes even producing in them an atrophy or a dilatation. At the same time as the development of connective tissue—sometimes without it—I observed an infiltration of round cells, which commenced more frequently at the base of the mucous and submucous membranes, especially around the vessels of the latter. The distribution of the round cells in the mucous membrane was not regular; it followed more particularly the larger vessels.

3. *Vessels of the Mucous and Sub-mucous Membranes.*—A third lesion of the mucous membrane that I observed fourteen times was that of a marked venous stagnation, with excessive dilatation of the vessels, and a thickening of their walls. The capillaries gorged with blood reached the surface of the mucous membrane. Besides these principle modifications, twice I observed a considerable amyloid degeneration of the stomach; it was especially localised in the muscular layers of the arteries, and in the muscular fibres of the mucous membrane.

For a long period the frequency of intestinal tuberculosis has been known. All agree that the most common cause is in the ingestion of tubercular sputa. But no one went further; no studies were made as to the manner of its development. Thus, the medical world has rarely been, up to the present date, occupied by the question whether the intestinal tuberculosis, occurring during the course of pulmonary tuberculosis, can be developed by auto-infection each time that the sputa containing the bacilli are swallowed by the patient, or whether in order that it may develop, there must at the same time exist alterations either of the stomach or of the intestine itself. R. Koch,[6] whose high authority concerning this part of medicine is recognised by all, explains as follows "the fact that intestinal tuberculosis is not found in all phthisical patients who swallow more or less sputa containing the bacilli. In the first place, it seems that the intestine offers a less favourable soil than the lung for the development of the bacilli of tuberculosis, which develop slowly. Also, it has been shown by experiment, in which the bacilli of charbon and their spores were swallowed, that the bacteria not containing spores are destroyed by the stomach, while the spores of these bacteria pass with impunity through the organ; for the same reason, it is only substances containing spores which can determine an infection in the digestive canal. It is, therefore, very probable that the bacilli of tuberculosis act in the same way in this respect as the bacilli of charbon, and that only in the cases where they contain spores can they give rise to intestinal tuberculosis, on the condition that they do not traverse too rapidly the intestinal canal so as to hinder their fixation on a point of the intestinal mucous membrane. There exists naturally the same danger of infection from tubercular meat, which probably is explained by such an infection being so rare."

The first indications of real value as to the relations which exist between intestinal tuberculosis and gastric lesions, are to be found in Schwalbe's Memoir (*loc. cit.*). We shall refer to this work further on. At present we will simply say that he examined in all 17 cases, and that he came to the conclusion that the relation existing between intestinal tuberculosis and the gastric lesion cannot be pronounced.

In his work on gastric lesions in phthisical subjects, Marfan occupied himself indirectly with the same question. He concludes that gastric lesions are found in consumptives, without investigating the importance of these lesions in the tubercular affections of the intestine. Professor Zahn, whose attention for some time back has been attracted by the frequency of intestinal tuberculosis in pulmonary tuberculosis, and who also remarked that in this case there existed chronic gastritis as well, was convinced that it was not a simple coincidence, and that the gastritis aided in some way the development of the intestinal tuberculosis. I examined 34 cases of pulmonary tuberculosis—20 men and 14 women. Of these 34 subjects 26 were bearers of a pulmonary lesion, and an intestinal lesion, of the same nature; 8 only had no trace of intestinal lesion. Of the 26 cases of pulmonary tuberculosis with intestinal lesions, there were some (Cases I., XXI., XXII., XXVI., XXXII., and XXXIII.) where the intestinal tuberculosis was very slight, others (Cases XXX. and XXXIV.) where it was more marked, and, finally—the greater number—where the tubercular ulcerations were scattered over the entire intestinal mucous membrane. At present the question is whether in these 26 cases the intestinal tuberculosis was accompanied by a gastric affection.

The results of my investigations give this question an affirmative reply—that is to say, that *where there were gastric lesions there was intestinal tuberculosis. More conclusive still, the more severe the gastric affection and the more ancient the date, the more severe was the tubercular lesion of the intestine.* As a proof of these facts, I refer the reader to Cases IV., VIII., XI., and XVIII., where the subjects were alcoholic, or had a dilatation of the stomach, or had suffered for a long period from gastric troubles, where the microscope revealed a gastritis in an advanced condition, and where, at the same time, the intestinal tuberculosis was extremely severe. The gastritis existing in the 26 cases was the more often interstitial and chronic, characterised by a proliferation of connective tissue, infiltration of round cells, and more rarely by atrophy or dilatation of the glands. In all the cases where the gastritis was chronic, the intestinal ulcerations were large, profound, irregular, and extending to the peritoneum—in a word, they presented the characters which indicated an intestinal tuberculosis far from being of recent date. On the other hand, in the cases where the gastric alteration was less marked, of a more recent date—sometimes it was only an acute parenchymatous gastritis—the intestinal tuberculosis was not only less severe, but the ulcerations were small and partially healed; at other times, it presented itself under the form of small ulcerations, or tubercles, as yet not ulcerated. In contrast to these 26 cases of pulmonary tuberculosis, with intestinal tuberculosis and concomitant gastric affections, there are 8 cases (I., IX., XII., XIV., XV., XVI., XIX., and XXVII.) of pulmonary tuberculosis without tubercular affections of the intestine. In these 8 cases how did the stomach behave? The microscopical and macroscopical examinations showed that in seven cases there was no appreciable lesion of this organ. The glands were normal, their cells distinct and stained well; the connective tissue presented no proliferation; the interglandular spaces were not enlarged, and nowhere was infiltration of round cells found; only in some cases was there a slight hypertrophy of the lymphatic follicles. The vessels of the mucous membrane were also normal; no blood stagnation was found, or the vascular dilatation so frequently met with in gastritis.

In one only of these 8 cases (XIV.), exempt from intestinal tuberculosis, did I find a slight anatomical modification of the stomach, which was probably produced during the last of the disease. This modification consisted in an infiltration of round cells, and the presence of blood pigment in the mucous membrane indicating an acute interstitial inflammation of the stomach, followed by an extravasation of the blood. This inflammation was probably due to influenza, from which the patient died. After what has been stated, I think that I have the right to say that, *if in the course of a pulmonary tuberculosis the stomach is found presenting anatomical alterations more or less severe*, these ought *to be considered as facilitating this lesion.*

In order to uphold this thesis, I will not content myself only with the results of my investigations, but will indicate some indisputable facts which speak in favour of the theory that I advance:—1. If the cases cited by Schwalbe are attentively read, 7 cases are found (VIII., XVI., XVII., XVIII., XX., XXIII., and XXV.) where no intestinal tuberculosis existed, and in all the 7 cases there were no appreciable lesions of the stomach; neither round cells, proliferation of connective tissue, nor amyloid degeneration. It must be remarked, besides this, that in no one of the 7 cases was there dilatation of the stomach, and the appetite was fair in all, without other gastric troubles. In some of these cases the author was careful to state that the subject had shown no alcoholic excess. As is seen, all these cases speak in favour of my theory. 2. Two patients admitted among those whom I examined (XI. and XVII.) contracted their tuberculosis, pulmonary and intestinal, during their sojourn at the hospital. One of these is P. M., aged thirty-five, who was admitted to the Cantonal Hospital Aug. 25, 1889, under the care of Prof. Revilliod, for spinal meningomyelitis without any pulmonary lesion. She remained at the hospital five months, and then contracted a pulmonary tuberculosis with intestinal ulcerations of the same nature; at the autopsy a chronic gastritis is found. The microscope showed a great proliferation of connective tissue at the base of the mucous membrane ascending between the glands, separating them, and producing an extreme dilatation of them. Besides, a severe blood stagnation is discovered, as well as a marked venous dilatation. The second case is still more eloquent:—P. J., labourer, who entered the Cantonal Hospital, under the care of Prof. Revilliod, for dilatation of the stomach and chronic alcoholic gastritis, without presenting at admission the slightest appreciable lesion of the lungs upon auscultation. During his stay in hospital he contracted pulmonary tuberculosis, and at the autopsy, besides the great dilatation of the stomach, its hyperæmic and mammillated condition, a slight pulmonary tuberculosis and intestinal lesion of the same nature is remarked. The microscope confirmed the clinical and macroscopical diagnosis of chronic gastritis. In these two cases I feel justified in asserting that chronic gastritis preceding pulmonary or intestinal tuberculosis has rendered the latter possible. 3. Still more, one could, perhaps, here range the cases published by A. Laveran,[6] who in his service saw four young subjects between eighteen and twenty-two years, sick with typhoid fever, contract, during their stay at the hospital, a pulmonary and intestinal tuberculosis, shown by the autopsy. Admitting that here, in the first place, it was the typhoid fever which predisposed, as Laveran says, these cases resembled closely the two patients cited by myself, and who contracted intestinal tuberculosis during their stay at the hospital, following gastric troubles.

This is how Laveran himself interprets this inoculation:—"It seems very probable that in the Cases I., II., and III. the bacilli of tuberculosis grafted themselves on to the nearly cicatrised typhoid ulcerations. The dust from the air often remains in the mouth or pharynx, and much of it is swallowed with the saliva, so that it may easily be understood that the microbes floating in the air can penetrate into the intestine; we would also add, the dust falling on the food and drinks left so often uncovered in the hospital wards. . . The possibility of this manner of infection cannot be denied."

I cite this textually without, however, siding with the author, as other interpretations are also possible. 4. A fourth and very strong support is furnished me by the recent epidemic of influenza. This disease, as is known, quite often accompanies gastric and gastro-intestinal troubles, which last some days, and even weeks. On the other hand, I must say that nearly all my consumptives who died during the last two weeks of Dec., 1889, up to the end of March, 1890, had the influenza. At present, if my hypothesis is correct, if really the cause of the intestinal tuberculosis is a pathological condition of the stomach, the patients who died during this epidemic should present a greater proportion of intestinal tuberculosis than at another time. And, in fact, this increase existed, and was so great that I do not hesitate to see in it a considerable support in favour of my theory.

Of 800 cases of pulmonary tuberculosis in which the autopsies were made during the period of thirteen years at the Cantonal Hospital, it is found that 46 per cent. of pulmonary tuberculosis are accompanied by an intestinal lesion of the same nature. Of 40 autopsies revealing pulmonary tuberculosis, made during the epidemic of influenza, 75 per cent. were found to have intestinal lesions as well. The difference, as is seen, is 29 per cent., which leads me to formulate the following conclusions:—1. In chronic pulmonary tuberculosis the intestinal tuberculosis depends upon the state of the stomach. This organ modified in its structure by either parenchymatous or interstitial inflammation, or by amyloid degeneration, can no longer discharge its functions normally, and cannot be an obstacle against the invasion of the bacillus. 2. Intestinal tuberculosis is always preceded or accompanied by a pathological condition of the stomach. A capital point in the treatment of tuberculosis should be attention to the state of the stomach, either in preventing the modifications which may appear or in treating these modifications, for intestinal tuberculosis, added to the pulmonary, quickens the course of the disease. 3. Man, on account of his life being more abnormal, and gastric troubles resulting from this, is oftener attached by intestinal tuberculosis than woman (during the course of pulmonary tuberculosis). 5. The age of the patient, the degree of pulmonary lesion, and its duration have no very great influence on the production of intestinal tuberculosis. 5. Pulmonary tuberculosis by itself cannot directly produce a gastritis which would permit of a tuberculisation of the intestine.

WORKS CITED.

[The Numbers correspond to those in the text.]

[1] Schwalbe. "Die Gastritis der Phthisiker von pathologisch-anatomischen Standpunkte" (Arch. f. path. Anat. 1889. Bd. 117, page 316).

[2] Louis. "De la gastrite" (Arch. de Médecine, 1824).

[3] Wilson Fox. "Diseases of the Stomach." 1872.

[4] Loquin. "Dyspepsie des tuberculeux." Paris Thesis. 1872.

[5] Koch. "Ætiologie des Tuberculosis" (Mitteilungen aus dem kaiserlichen Gesundheitstamte. 1884. Bd. 2, page 81).

[6] Laveran. De la Contagion dan les Salles d'Hôpital" (Médecine moderne. No. 12. 1890).

ART. VII.—*Observations on Visual Examination in Gynaecology and on a new Speculum Illuminator.*[a] By THOMAS MORE MADDEN, M.D., F.R.C.S.Ed.; Obstetric Physician and Lecturer on Clinical Gynaecology, Mater Misericordiæ Hospital, Dublin; Physician, Hospital for Children; Examiner, Conjoint Board Royal College of Surgeons and Apothecaries' Hall of Dublin, &c.

THE importance of sufficient illumination as an essential element in the diagnosis and treatment of those morbid conditions of the vaginal portion of the uterus and of the vagina in which the speculum is resorted to is obvious. As was remarked by Dr. Bennett, more than a quarter of a century ago, "Whatever speculum be used for an examination, to render it satisfactory the entire cervix should be brought within the field of the instrument, and in a sufficiently good light to render evident the most trifling morbid change in the local state of the organ." Yet to the neglect of due attention to this consideration must, I think, be largely ascribed some of the erroneous views and practices which for many years retarded the progress of our branch of medicine, inasmuch as the instruments originally employed for visual examination for some years after Recamier's reintroduction of the vaginal speculum—whether Madam Bovin's ivory speculum or Charrière's quadrivales, of which I may here exhibit specimens which were in actual use within my own recollection—could afford no possibility of a distinct view of the cervical portion of the uterus by any illumination that could be thrown into them.

Our impressions on any subject, as we are told, are mainly dependent on the light in which it is presented to us; and the remark is quite as applicable to physical objects as to abstract questions. Dr. Latham long since well observed in his treatise on "Diseases of the Heart," in terms equally appropriate to uterine disease, "What an amazing difference there appears in the objects of nature around us, according to the point of view from which we regard them. When we stand on the right spot for taking in the whole prospect, we then see what before we could not see at all, and we then see clearly what before we only caught a glimpse of from some more commanding position. . . . Thus the point of view from which diseases of the heart are now regarded discloses so many new things, and puts so many old things in a much clearer light, that I distrust the results of my former experience, and feel the need of submitting all my practice, and the use of all my remedies, to the test of my own more recent observation." . . . . "As diseases are better understood, and we possess surer signs for discerning their seat, and progress, and events, the records of past experience become obsolete, and so a necessity arises for a new course of clinical observations." As the same eloquent writer, however, also points out, we should "always bear in mind that though the knowledge of the senses is the best knowledge, the delusions of the senses are the worst delusions."

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[a] Read before the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on Friday, May 23, 1890. [For the discussion on this paper see page 171.]

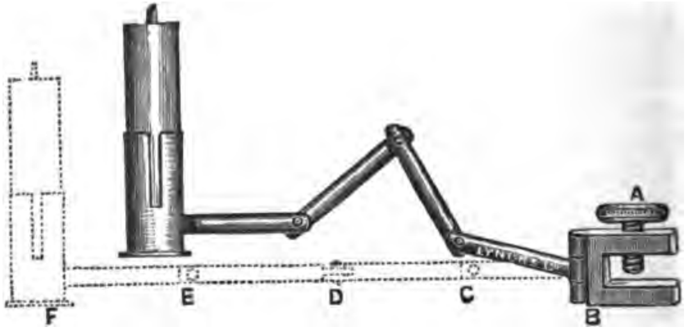
This observation may, I think, serve to explain the very opposite descriptions and delineations which, in the earlier days of gynæcology, writers of apparently equal accuracy and with equal opportunities of clinical experience have left on record with regard to the aspect and character of the most common forms of disease which are discernible through the vaginal speculum. For instance, a little more than thirty years ago numerous and, in some instances, very heated controversies were thus occasioned; from the time when Dr. Henry Bennett on the one side and Dr. Robert Lee on the other broke their spears and lost their tempers over the then moot question of the existence and importance of cervical ulcerations, a controversy in which, as in most other similar discussions, each was perhaps equally in error, and neither could see the truth as it has been since disclosed to us by improved methods of investigation, to which I venture to think that appliances such as that which forms the subject of this paper may prove subservient. Looking at the cervix by the means thus relied upon Bennett asserted that ulceration of the os uteri was the most frequent pathological condition disclosed to view by the speculum, whilst Lee no less strenuously denied that this was ever seen in any case. Thus, in the Transactions of the Royal Medico-Chirurgical Society for November 1st, 1857, Dr. Lee went so far as to say that "neither in the living nor in the dead body had he ever seen a case of simple ulceration from chronic inflammation of the os or cervix uteri, and to apply the term to states of the os uteri in which the mucous membrane, or as it is termed by some, the basement membrane, is not destroyed by ulceration, was an abuse of language calculated only to deceive and mislead the members of the medical profession, from whom the truth had been carefully concealed. The speculum emanates from the syphilitic wards of the hospitals at Paris, and it would have been better for the women of England had its use been confined to those institutions."

Nor was this emphatic negation of the character of the morbid conditions which are depicted as ulcerations of the os and cervix in Bennett's treatise on uterine disease—and many of which presented themselves as such to him and his followers until their true nature was ascertained long subsequently by Dr. Emmet, and which, as I believe, were for long regarded as ulcerations, mainly because they were inspected through a badly-lighted speculum—sufficient for the unpromising Obstetric Physician of St. George's Hospital, but it led him, as just said, to the length of denying the utility of the instrument through which such erroneous views of uterine pathology had been obtained. Shortly afterwards Dr. Lee republished his remarks, "A Treatise on the Employment of the Speculum in the Diagnosis and Treatment of Uterine Diseases, with 300 cases. By Robert Lee, M.D., F.R.S., Obstetric Physician to St. George's Hospital, &c. London. 1857." This was, as he says, issued "with the hope that it may contribute in some degree to the correction of those erroneous and pernicious doctrines respecting the diseases of the uterus which have recently been introduced into England from foreign countries; and, if possible, to curb the licentious use of the speculum."

Had, however, those who thirty years ago thus differed as to the nature of the morbid appearances presented to visual examination by the vaginal speculum, and entertained such widely opposite opinions as to the value of the means by which they were disclosed, possessed instruments such as the various forms of specula which from the time of Fergusson and Marion Sims have been developed and brought to their present perfection, and enjoyed the advantage of those methods of illumination by which direct sunlight may be now replaced, when necessary, the violent controversies and erroneous practices of former days might possibly have been avoided.

Much as has been thus done in this way, there is, however, I think, still room for further improvement, as even yet amongst the every-day troubles of gynæcological work not the least frequent or least annoying of its kind is the difficulty occasionally experienced in making a satisfactory visual examination of the vagina or vaginal portion of the uterus in many cases where it is required for diagnostic or therapeutic purposes. In regions wherein sunshine is so exceptional, as unfortunately is the case under the leaden skies and murky atmosphere of the British Isles, this difficulty frequently presents itself even in the best-arranged consulting rooms, where the couch is most advantageously placed with reference to light. And, *à fortiori*, it occurs still more commonly in the patient's chamber, where the bed is often so situated as to preclude full access of natural light into the speculum. Nor is this deficiency supplied by any of those electric speculum lamps that I have myself at least as yet employed, these being apt to fail us at the moment their aid is needed; as, owing to some one or other of the defects either in battery, connections, or lamp that are of such continual occurrence in electric apparatus, on pressing the button, instead of the brilliant flood of light expected the result obtained may be either *nil* or else merely the dull-red glow of the incandescent carbon filament. Whilst on the other hand, if we content ourselves with the more reliable, if less elegant, "bit of candle end," still recommended by some authorities for this purpose, the necessity for holding it so as to throw some light into the speculum must largely interfere with any manipulation required by the case.

I would, therefore, venture to suggest to other practitioners who are likely to meet with the difficulty just referred to, a trial of the little appliance now shown, which I have found serviceable under such circumstances. It consists simply, as will be seen, in a very portable many-jointed light-holder, capable of rotation in every direction, which can be instantly and securely affixed to any form of speculum so as not to be in the surgeon's way, whilst affording sufficient and reliable light for all examinations or operations in the vaginal passage.



I have only to add that this instrument has been made for me by Messrs. Lynch & Co., of Aldersgate, London, who have very satisfactorily carried out my directions in the construction of a speculum illuminator which I hope may possibly be found as useful and handy by other surgeons as it has been by myself.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON DISEASES OF THE NOSE AND THROAT.

1. *Diseases of the Nose and Throat.* Vol. I. *Nose and Naso-Pharynx.* By F. H. Bosworth, A.M., M.D. New York: Wm. Wood & Co. 1889. Pp. 660.
2. *Diseases of the Nose.* By Greville MacDonald, M.D. London: A. P. Watt. 1890. Pp. 356.
3. *Diseases of the Nose and Naso-Pharynx.* By James B. Ball, M.D. London: H. K. Lewis. 1890. Pp. 240.
4. *The Throat and Nose and their Diseases.* By Lennox Browne, F.R.C.S.E. Third Edition. Revised and Enlarged. London: Baillière, Tindall, & Cox. 1890. 8vo. Pp. 716.

For those who desire to make themselves up in what seems to be as yet the latest specialty there is no lack of books of various pretensions which they may consult.

1. The first of the four mentioned above is a really first-class piece of work, creditable to all concerned in its production; it is put out in the excellent manner as to paper and type usual in the better class American books; and the illustrations, including four coloured plates, are admirably done. We would direct attention especially to Figs. 27 and 70, as giving a much truer representation of the posterior nares than is usually seen in illustrations of those parts.

Dr. Bosworth has written what must be for a long time to come a standard work on the subjects treated of. The increased attention given of late years to diseases of the nose and naso-pharynx is remarkably illustrated in the present volume. The author's intention had been to bring out a second edition of his book on the Throat and Nose, which appeared in 1881, and in which the pages devoted to diseases of the nose amounted to only 86, out of a total of 420; but the subject has so developed during the intervening nine years that almost the whole of this large volume is devoted to those subjects—the diseases of the throat being treated of in a second volume.

As might of course be expected this rapid expansion of a hitherto undeveloped field for investigation and practice led to many wild and untenable theories, and we fear also to errors of practice; and it is pleasant to observe that already, as shown in the works here noticed, authors display a very commendable caution as regards pathological and other speculations, as well as a marked tendency to moderation and conservatism in treatment.

It would be quite impossible, within the limits of a short notice, to criticise in detail Dr. Bosworth's work. We may say, moreover, that criticism must be almost entirely favourable. His descriptions are complete without diffuseness; his views on ætiology, pathology, &c., are put forward with clearness and with moderation when dealing with contentious matters, and his references to authorities are full and complete.

The anatomical description of the parts concerned is excellent, and the chapter on the Physiology of the Nose and Naso-Pharynx is very well worth the attention even of those not specially concerned with nasal disease. The latest experiments, chiefly by Aschenbrandt and Kayser, are fully given. Some of these observations would seem to necessitate a reconsideration of the statements usually made in works on general physiology as to the amount of watery vapour given off by the lungs, as it would appear that, at least when nasal respiration is practised, the inspired air reaches the lungs fully saturated with moisture derived from the mucous membrane of the nares.

In describing the turbinates Dr. Bosworth adopts Zuckerkandl's views as to their anatomy, but demurs to the use of the term "erectile tissue" as applied to their special covering. He, however, in effect agrees with most other writers as to their functions and varying states, as influenced by the vaso-motor system.

We observe that Dr. Bosworth does not admit that his fellow-countrymen are specially prone to diseases of the nose and naso-pharynx, and suggests that this impression has had its origin in the early and active attention given by American specialists to these affections.

2. Dr. MacDonald's book is a very excellent specimen of the "handbook" type, and perhaps its chief fault lies in the tendency

of the author to put forward at considerable length his theories as to physiology, pathology, &c., which, however suitable in a large work like that just noticed, are rather out of place here. There is a long chapter at the beginning of the book devoted to a minute account of observations by the author on the changes produced in inspired air during its passage through the nares. This would have been much more appreciated if communicated in a scientific journal, and it would have been quite sufficient if in his book he had mentioned the experiments of Aschenbrandt and the control observations of Kayser; but the latter observer is not mentioned, and Dr. MacDonald's experiments do nothing more than confirm his results.

Before leaving this subject we must notice a curious assertion of the writer (p. 208), that in sneezing the air is not expelled through the nose, and that the act results only in a condition of vascular tension of the parts, which causes an increased secretion.

We must also take exception to some statements made by Dr. MacDonald. For instance, he does not consider that hypertrophy of the inferior turbinates is often seen in children; or that struma is an important factor in adenoid growths of the naso-pharynx.

On the other hand, we read with great satisfaction his remarks on nasal reflexes, which are marked by extreme moderation and intelligence.

He gives a most useful warning as to the use of cocaïn, which drug is, we have no doubt, often used much too freely through carelessness or ignorance.

With a few exceptions, such as those above mentioned, the book is an excellent one, and may be read with profit by the practitioner who cannot be expected to attack a more diffuse authority, but who is anxious to obtain information which will be of practical value in his daily work, and it will be found a reliable guide to the special subjects of which it treats.

The formulæ at the end of the book are well chosen.

The book is creditably got up, and is well and sufficiently illustrated.

3. In view of Dr. MacDonald's excellent manual we must say that we can scarcely see the necessity for Dr. Ball's "handbook," which leaves the impression of being a compilation rather than the product of experience.

4. We have so thoroughly (January, 1888) reviewed the second edition of Mr. Lennox Browne's treatise ou the Throat and its Diseases that no detailed notice of the present issue of the work is called for. In two important respects the new edition differs from its predecessor. First in its title, which reads "The Throat and Nose and their Diseases," whereas the second edition described the work as being devoted to "The Throat and its Diseases." The author gives the reason for this change of title in his Preface. He writes:—

> "Especial note has been taken of the circumstance that Laryngology, which formerly depended almost entirely upon the somewhat limited revelations of the laryngeal mirror, is in these later times assuming a new aspect, and opinion is each day becoming more indisputable that in the condition of the Nasal Fossæ, which constitute the first avenues of the natural breathway, is to be found the key to a right understanding and successful treatment of the majority of Faucial, Pharyngeal, and Laryngeal diseases. The chief feature of this edition is, therefore, fitly emphasised by the expansion of that portion of the volume which treats of intra-nasal and naso-pharyngeal maladies. In this connection several new illustrations of the various forms of nasal obstruction, and of instruments for their relief, are added."

The second noteworthy point connected with this, as compared with the second, edition, is the prominence assigned to the subject of the functions of the tonsils, which has been expanded in this edition commensurately with its importance. We venture again to quote from the Preface:—

> "Within recent years much valuable work has been done, which has proved that these glands play important *rôles*, the chief of which is probably that of the manufacturing of leucocytes, to act as 'scavengers' for the clearing away of food *débris*, and for the holding in check micro-organisms in the upper respiratory and alimentary tract. It has also been shown that these lymphoid structures are not confined to the fauces or to the naso-pharynx, but that similar though smaller aggregations of adenoid tissue are to be found at the root of the tongue, in the ventricle of the larynx, in the nose, and other situations, constituting minor 'tonsils'—lingual, laryngeal, &c.—with similar duties to those of their more important congeners of ordinary recognition."

The authorities quoted by Mr. Lennox Browne in support of the foregoing views are Dr. R. Hingston Fox, in the *Journal of Anatomy and Physiology*, Volume XX.. page 559; Mr. G. William Hill, formerly Surgeon, Registrar, and Pathologist of the Central

Throat and Ear Hospital, London (*Brit. Med. Journal*, Sept. 1 and 15, 1888); and E. Retterer, in Pouchet's *Journal d'Anatomie* (Paris, 1888).

The work is profusely illustrated with one hundred and twenty coloured drawings and two hundred and thirty-five engravings, most of which have been designed and executed by the author, whose artistic skill as a draughtsman and a limner is too well known to need laudatory mention at our hands. No such collection of pictures of the nose and throat passages in health and disease is to be found within the covers of any other book with which we are acquainted.

The use of footnotes is superseded by appending to each chapter a bibliographical list of authorities on the different subjects. Reference to the entries in these lists is indicated in the text by prefixing a small numeral to the name of each authority as it occurs.

We have again to express the opinion that Mr. Lennox Browne has given to the medical world in the volume before us "a thoroughly clear, practical, and masterly work."[a]

A System of Practical and Scientific Physiognomy: or, How to Read Faces. Being a Manual of Instruction in the Knowledge of Human Physiognomy and Organism, embracing the Discoveries of Located Signs of Character in the Body and Face, as shown by the Five Natural Divisions of the Countenance. By MARY OLMSTED STANTON, Author of "A Practical and Scientific Treatise on Physiognomy," "A Chart for the Delineations of Mental and Physiological Characteristics," &c. Two volumes. Philadelphia and London: F. A. Davis. 1890. 8vo, pp. 1,222.

WE are all physiognomists from the cradle. The infant, in its earliest period of intelligence, is attracted or repelled by the faces that surround it, antecedently to special experience of them, and to association of pleasure or pain with the features they present. Even the higher of the lower animals are guided in their estimates of human beings previously unknown by physiognomical observation. It is remarkable, then, that the subject has received so little scientific treatment or attention. The word "physiognomy" at once suggests the name of Lavater—but even his great work was not, and did not profess to be, scientific. He knew little or nothing of anatomy or physiology. He was a keen observer, and gifted with a power of intuitional inference; and, though now rarely read, and to most people little more than a name, he did much to rehabilitate and revive in his own day the study of the connection between character and external form. He looked to future workers to pursue his favourite study with scientific knowledge which a Swiss pastor did not, and could not, possess. "He predicted," Mrs. Stanton tells us, "that a *System* of Scientific Physiognomy would be formulated within this century." She adds, "behold! it is here." Lavater published in 1776—and the world has had to wait till now for the fulfilment of his prophecy. So far as we are aware this ponderous treatise of Mrs. Stanton's is the first attempt to systematise a subject of great interest and of no little practical importance. Bell and Darwin touched the fringe of physiognomy in their works on expression—for physiognomy is permanent expression; some forty years ago an anonymous writer (absurdly conjectured by some, at the time, to be Archbishop Whately!) amused the reading world with a little tractate, *Notes on Noses*, which dealt, not unsuccessfully, with a small, if important, corner of the physiognomical field; and, of late, little works on graphology—the relation of character to handwriting—a kindred subject, have appeared; but Mrs. Stanton's is, we believe, the first attempt to treat the entire subject of physiognomy systematically and scientifically, and is really entitled to exclaim—"behold! it is here."

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[a] See the notice of the second edition in the number of this Journal for January, 1888, Vol. LXXXV., No. 193, third series, pages 55-57.

One systematic attempt, indeed, had been made to establish a connection between bodily conformation and intellectual, emotional, and moral qualities. Gall and Spurzheim, with their English interpreter and follower, Combe, had founded what they supposed to be the science of phrenology. In these days when experiment, in the hands of Hitzig, Ferrier, and others, is applied to cerebral localisation, after which the phrenologists groped with observation alone, we are apt to undervalue the labours of the two great Germans, whose industry in induction of particular facts, and skill in generalisation, deserve more appreciation than they receive. The phrenologists failed, and phrenology is discredited, partly because they assumed a conformity which does not exist between the "bump" without and the brain within; partly because their classification of faculties was illogical; partly because—as in the similar case of mesmerism, hypnotism, &c., in our own day—charlatanism stepped in and seized the promising art while scientific men were contemptuously sniffing at the science. Mrs. Stanton assigns a furthur cause for the failure of the old phrenology—for, in her Preface, she states that her practical and scientific physiognomy "takes the position that mind inheres in the entire organism, and that the brain is only one source of the mind or of mental operations; that the mind and body are one and indivisible, and cannot be judged as separate entities; that the mind is not shut up in the skull, as is taught by a certain class of metaphysicians." Subsequently she quotes from G. H. Lewes: "Mind is the sum total of the whole sensitive organism—no one exclusive organ of mind can be said to exist."

Mrs. Stanton has produced two ponderous volumes, containing, in their 1,222 large octavo pages, almost everything that is known (and perhaps some things that are not known). on the subject of physiognomy in its widest sense. She includes in her science the interpretation not merely of facial features, or even of conformation of the body and the limbs; but, in her system, includes "the colour of the skin, eyes, and hair, as well as the voice, the attitude, the gestures, the movements, the wrinkles, dimples, lines, hands, feet, and muscles in action;" all of which, she maintains, are "faithful indices of character." A work built on such a plan as this must needs be bulky, but need not be enormous; and the author might have reduced its size with advantage. It shows persevering industry, shrewd observation, and familiarity with the writings of G. H. Lewes, Herbert Spencer, Maudsley, Ferrier, &c., and with Lavater's Essays as a matter of course. Her knowledge of her subject and everything connected with it, is cleft every now and then by flashes of ignorance which are positively dazzling,[a] and which show the need of revision which her work has not received She claims originality in localising fifty mental signs of character in the face, in localising facial signs of all the internal organs, and in connecting every mental faculty with a physical organ or system. "Each mental faculty," she says, "is traced to its physiological or anatomical base, either in the nervous, the muscular, the osseous, the thoracic, or the vegetative systems." The volumes are profusely illustrated, chiefly with portraits of well-known persons, whose features exemplify the physiognomical indications—the Grand Old Man's expressive features being three or four times utilised. A much-abridged edition, containing these illustrations and brief explanatory letter-press only, would be a most successful work; but we doubt if teachers or parents will welcome the author's announcement of her intentions to write "a primary work for the use of young children in the school and family." The prospect of having our every feature and movement searched on scientific principles by child or pupil for indications of our little weaknesses is not a pleasant one.

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[a] *E.g.*, "ova" and "arcana" are used as singular nouns; the cornea is called "retina;" the process of the ethmoid bone is called "christi galli;" and so on.

We cannot attempt to give, in the space at our disposal, even an outline of Mrs. Stanton's system. Part I., occupying 272 pages, is introductory. In this section, and indeed throughout the two volumes, mixed up with good sense and evidence of study, thought, and observation, we find strained analogies and preposterous inferences, which bring the irrepressible smile upon the gravest face. The subject lends itself to comic treatment—we know not why—and the author's intense seriousness and earnestness, combined with deficiency in sense of humour, render her pages more mirth-provoking than she could have anticipated. One cannot but smile on reading that—"George Washington stands as the representative of the law of the rectangle, as applied to human form and conduct; he was over six feet in height, perfectly upright in his bearing, and his general outlines and features were at right angles to each other: hence his uprightness and obedience to the laws of rectitude and morality was [*sic*] in accord with the law of his form. He was also a surveyor by profession—a scientific pursuit based on number and form."

The primary division of the human face, for physiognomical purposes, is into the "chemical," "architectural," and "mathematical" sections; exhibiting "vegetative," "constructive" and "reasoning" power; the first including cheek and mouth; the second, nose, eyes, ear, and lower part of forehead; the third, the upper part of the forehead; and at the end of Chapter IV., devoted to the Sub-basic Principles of Physiognomy, we find the following summary of "laws" which we are to regard as established:—

> "The *size* of the nose (governed by quality) is the measure of power, both of the mental and physical nature. The *form* or shape of the nose indicates the kind or direction of the power. *Quality* of the skin, hair, and eyes is decisive as to the grade of the individual, mentally and physically. *Color* of the skin, hair, and eyes is indicative of the amount of force present, and of the health conditions. *Proportion* or harmonious development of the face denotes balanced character and equilibrium of the bodily functions."

From the conclusion of the same chapter we quote the following passage:—

"A man can no more work as a blacksmith for years without showing the increase of muscle in his arms than one can use constantly the same set of muscles in the face without their leaving a permanent indication of such use. By watching closely the movements of the mouth in talking one can form a very good estimate of the kind of language which that mouth has been accustomed to utter—whether it be kind, gentle, and loving, or cross, peevish, bad-tempered, and profane. The record is indelible, and cannot be easily erased or changed except by long practice in another direction. All abuses of the physical functions write their record on the face. The dram-drinker, the sensualist, the glutton, as well as the sneak and the liar, may be all detected by a close observer who has learned to apply the rules of scientific physiognomy."

The second and larger part of the work is devoted to Practical Physiognomy. Each of the fifty mental faculties is taken up separately, and its facial and bodily signs are described with great minuteness, and illustrated by two portraits—in most cases of persons who are living, and nearly all of whom are well known. For example, the seventh on the list is "Bibativeness:" defined "love of liquids; capacity for the assimilation of water, soups, gravies, sauces, lemonade, fruit-juices, &c.; natural adaptation to swimming, bathing, sailing, washing, and scrubbing. Mentally, it creates a taste for marine scenery, both natural and pictured; it imparts a love of ease, and assists in building up the domestic and social traits." Excess of the faculty causes obesity and indolence; perversion ends in drunkenness and its sequelæ. "Excessive use of liquids produces 'fat sleek-headed men and such as sleep o' nights'—useless members of society, such as loafers and criminals." The primitive facial sign is "fullness of the cheeks about one inch outward from the corners of the mouth." "The fearful examples" given in illustration are Alexandre Dumas and a very jovial—not to say drunken-looking—personage, labelled "Monsieur D'Aubray, French gentleman." The history of the latter is unknown to the author; "but his face gives a pretty good account of him, and I take him on his facial record. *Bon vivant* is written all over this countenance. To his intimates he is a 'jolly good fellow;' can tell and enact a story; loves 'wine, women, and song.'" Bibativeness occupies eight pages; a fact which gives an idea of the scale on which the work is laid down. It is scarcely—we should add—a fair illustration of the author's style and method, because the "faculty" obtrudes a comic side; and we have no desire to create an impression that either the book or its subject is fit only for mirth.

Having gone through the fifty "faculties" *seriatim*, the author examines each feature and describes its indications separately—chin, jaw, lips, voice, mouth, cheeks, nose, eye, eyelashes, eyebrows, forehead, head, hair, ear, wrinkles, dimples, teeth, gums, tongue, physiognomy of smiles and laughter, neck, hand, nails; with abundant illustrations, not, as a rule, in this section, concrete and personal. A long chapter of seventy pages discusses Choice of Vocation; giving the combinations of faculties suitable for various trades and professions. A bibliographical list and a brief glossary are supplied; and each volume is provided with an index. The material finish of the work leaves little to be desired, misprints being singularly few. On the whole, we may congratulate Mrs. Stanton on the completion of her labour of love, and express a hope that she may see her way to favour us with a manual on so really serious and important a subject as physiognomy at less elaborate and inordinate length.

Medical and Surgical Report of the Tyrone County Infirmary for the Year 1889. By EDWARD THOMPSON, M.B., Univ. Dubl.; F.R.C.S.I. Omagh: *Tyrone Constitution* Office. 1890, Pp. 10.

DURING the year 1889, the number of patients admitted into the wards of the Tyrone County Infirmary was 509, and 3,030 from all parts of the County were advised and prescribed for gratuitously. Two hundred and twelve patients were refused admission, their cases being considered either incurable or not suitable for hospital treatment, and 30 single and 12 double trusses were issued. This represents an amount of work which demonstrates with convincing force that the infirmary is appreciated by the public, and that it has firmly rooted itself in the affections of the people. The surgical operations, as usual, were numerous and severe, and included, amongst others of lesser importance, the following:—1 ovariotomy, 2 hysterectomies, 2 excisions of knee-joint, 1 excision of elbow-joint, 1 excision of wrist-joint, 1 cataract extraction, 6 removals of diseased bone, 1 suprapubic lithotomy, 1 resection of os calcis, 1 perinæal section, 12 cancer lips, 19 removals of tumours (weighing from 28 lbs. to a few ounces), 4 amputations of the breast, 2 amputations of the thumb, 2 amputations of toes, 4 divisions of tendons in club-feet, 2 hare-lips, and 448 minor operations. All of the operations were completely successful except two cases, which necessitated the removal of the uterus. The patients both succumbed on the sixth day. Twenty-one simple and compound fractures and 5 dislocations were also treated during the year. The expenditure was £1,605 8s. 3d., the average cost of each occupied bed being £39 13s. 11d., and of each patient £3 4s. The average stay of each patient in the hospital was 25 days.

In his Report, Dr. Thompson alludes to the appointment of a house surgeon, in the person of Mr. Richard Thompson, L.K.Q.C.P., L.R.C.S.I., who previously held the post of Resident Clinical Assistant. He also mentions the fact that the Infirmary has now secured the services of a thoroughly capable and well-trained staff of hospital nurses.

We are sorry that so valuable a Report should issue from the press in so mean a garb as the little paper-covered pamphlet from which we have culled the foregoing information.

Illustrations of Diseases of the Skin and Syphilis, with Remarks. By TOM ROBINSON, M.D. Fasciculus I. London: J. & A. Churchill. 1890. Three plates. Pp. 8.

"OF writing many books there is no end," sang Mrs. Browning, in the opening of "Aurora Leigh," and we are almost compelled to echo the sentiment (with a slight verbal alteration), on looking over the present work. Considering the flood of Atlases of Skin Diseases with which we have been overwhelmed in late years, since first pictorial art assumed a definite place in medical science, any new venture must expect its full share of comparative criticism unless it can put forward peculiar and exceptional claims to support. Such are not evidenced in the opening part of the work before us. The subjects illustrated are "Kerion," "Inherited Syphilis," "Palmar Syphilis," and "Palmar Eczema," and neither from their rarity nor from the excellence of the artistic reproductions, are they entitled to the immortality of an atlas. We regret we cannot congratulate the author on his chromo-lithographs, while his style of writing might be held up to schoolboys as a model of "English as she ought not to be wrote." The text, from a specialist standpoint, is worse than the illustrations, and as only common subjects are discussed in the present part, the meagreness of the information, compared with that contained in any elementary manual, is only rendered the more striking. An exception must be made in favour of the picture of Palmar Eczema, which is good and faithful to nature; but on turning to the letterpress we find the appearances depicted treated of under the heading, "*Physical Signs*"*!* Several gross typographical errors disfigure the pages of what professes to be a *magnum opus*, and which, surely, as such, merits more careful revision. As Dr. Robinson intends to produce only one fasciculus every six months, we trust some of the interval may be devoted to polishing and elucidating his style and carefully correcting his letterpress; and we may conclude with a hope that the subsequent parts may establish a title to a *locus standi* in dermatological literature, of which the work is at present sadly in need.

The New Sydenham Society's Lexicon of Medicine and the Allied Sciences. (*Based on Mayne's Lexicon.*) By HENRY POWER, M.B., and LEONARD W. SEDGWICK, M.D. Sixteenth Part. Lin—Mas. London: The New Sydenham Society. 1889.

THE present part of this splendid work extends from "Linguadental" to "Maschaladenitis" inclusive.

A work of such magnitude as that under review cannot be produced quickly, and it is really being carried forward with all the quickness compatible with such careful supervision and editing as it receives. When finished, the lexicon will be a credit to British medicine and worthy of the great physician whose name the Society bears.

Electricity in General Practice. By W. BOLTON TOMSON, M.D., Musgrave Scholar; Treasurer's Gold Medallist, St. Thomas's Hospital, London. London: Baillière, Tindall, and Cox, King William-street, Strand. 1890.

THE expense of apparatus, their liability to get out of order, the inability of the ordinary practitioner to put them into working order, and the delay and annoyance of sending the apparatus to the instrument-maker, is one of the greatest obstacles to the use of electricity in general practice. Dr. Tomson, fully recognising these facts, and anxious that a remedial agent of such therapeutic value as electricity should be generally used by the profession, produced the present book, in which he clearly and tersely tells how the greater number of the difficulties that occur in the use of the electric current in practice are overcome. To all who use electricity we strongly recommend Dr. Tomson's book.

Guy's Hospital Reports. Edited by N. DAVIES COLLEY, M.A., M.C., and W. HALE WHITE, M.D. Vol. XLVI., being Vol. XXXI. of the Third Series. London: J. & A. Churchill, New Burlington-street. 1889.

THE present volume of Guy's Reports commences with *In Memoriam* notices of George Owen Rees, Leonard Charles Wooldridge, and Samuel Osborne Habershon. The notice of Dr. Rees is a typically perfect biographical sketch by Dr. Samuel Wilks, pourtraying one of the last of the medicals of the old school, who with all his fastidiousness in dress, and some marked peculiarities of manner, nevertheless did much good scientific work. On the part Rees played in the notorious Palmer trial we would have been glad to have had more from Dr. Wilks.

Dr. Wooldridge's obituary notice is from the pen of Dr. Pye Smith, and all who read it will regret the early death of one of the most promising of the original workers of Guy's—one who gave promise of worthily upholding the traditions of a school with which are associated the names of Addison and Bright.

Dr. Goodhart has made his notice of Dr. Habershon not only interesting to the general reader, but also to the psychologist, by tracing the hereditary run of talent in the Habershon family since his ancestors emigrated with Whitefield to Georgia, one of whom supplied the first Governor of the colony and the Postmaster-General in Washington's Cabinet.

The medical papers number nineteen, and many of them are of permanent interest, and some of them record cases of an unusual character; in this group is Mr. Dunn's case of "Complete Primary Absence of the Corpus Callosum," one of the rarest of anatomical anomalies.

"The Etiology and Clinical Aspects of Scarlatina Nephritis," by Dr. Goodall, and "The Pathology of the Human Sympathetic System of Nerves," by Dr. White, are carefully worked-out papers.

On the sympathetic nervous system, Dr. W. Hale White has already won distinction from his contributions to the Medico-chirurgical Transactions, and his papers in the *Journal of Physiology*. His present contribution is intended to show the physiological importance of the sympathetic in man and the lower animals, and the effect of disease on the nerve. He concludes from his study of the subject that "the larger sympathetic ganglia are functionless in the adult human being," a conclusion which receives support from the apparent impunity with which the larger ganglia have recently been operated on by some American and German surgeons.

Dr. Goodall, in his paper on Scarlatinal Nephritis, gives an analysis of 5,443 cases of scarlet fever admitted into the London Fever Hospital from 1879 to 1888 inclusive. All physicians will be interested in his elaborate tales, which form one of the most valuable of recent contributions to medical science.

Space does not allow of our doing more than referring to Dr. Savage's paper "On the Evolution of Mental Disorder," and Dr. Goodhart's paper "On the Treatment of Acute Pneumonia," which are illustrated by charts.

We strongly recommend this volume of the Reports to our readers, as a book of permanent value, and eminently practical in its teaching.

A Practical Treatise on Nervous Exhaustion (Neurasthenia): its Symptoms, Nature, Sequences, and Treatment. By GEORGE M. BEARD, A.M., M.D., Fellow of the New York Academy of Medicine; of the New York Academy of Sciences; Vice-President of the American Academy of Medicine; Member of the American Neurological Association; of the American Medical Association; the New York Neurological Society, &c. Edited, with Notes and Additions, by A. D. ROCKWELL, A.M., M.D., Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital; Fellow of the New York Academy; Member of the American Neurological Association; of the New York Neurological Society, &c. London: H. K. Lewis, 136 Gower-street, W.C. 1890.

A LARGE practice amongst our American cousins enabled Dr. Beard to produce a very readable book on nerve-exhaustion—a disease too common in the race for wealth on the other side of the ocean.

To physicians in good town practice the disease is common enough, and not very difficult of diagnosis. We believe drugs alone are useless in its treatment, and we cordially endorse the author's recommendation of rest—especially on the first evidence of nerve-exhaustion—as essential for recovery. Should another edition be called for—and we anticipate there will be a call for it, for the book is a good practical one—we would suggest the excision of the padding.

The Treatment of Disease in Children, embodying the Outlines of Diagnosis, and the chief Pathological Differences between Children and Adults. By ANGEL MONEY, M.D., Lond.; F.R.C.P., Lond.; Assistant Physician to the Hospital for Sick Children, Great Ormond-street, &c. Second edition. London: H. K. Lewis. 1890. Pp. 542.

WE are glad to see that a second edition of this excellent work has been called for. It thoroughly merits its position as one of Lewis's "Practical Series." Hardly any point of practical importance has been omitted; while, on the other hand, the discussion of matters which are doubtful, or which are of merely theoretical interest, has been avoided. As is indicated by its title, most attention has been devoted to the Treatment of Disease, and to the management—dietetic and hygienic—of sick children. From such a work, however, the subject of Diagnosis could not be omitted, "the alpha and omega of all rational treatment," as Dr. Money states in his Preface, "being precise diagnosis." The articles on this subject are well written, and contain in little space much that is of value; there is also, in most cases, a short sketch of the symptoms and course of the disease.

We notice with pleasure that Dr. Money's directions as to Treatment are stated with great precision and exactness. He does not merely give us a list of drugs to be used in any given disease without specifying dose, mode of administration, &c., as is so often the case in works on medicine, but he states exactly what medicine he considers should be given, and how it should be administered; he often appends, generally in smaller print, numerous other modes of treatment recommended by various authorities.

It would be difficult to read this book straight through, and it is not suitable for a student to study in order to gain a general and systematic knowledge of children's diseases for examination purposes; but it is eminently calculated to be useful to the practitioner as a work to refer to when in difficulty. A medical man who is treating children can hardly fail to gather useful hints from it; we consider it a most useful work on the subject it treats of.

RECENT WORKS ON CANCER.

1. *On the Reappearance ("Recurrence") of Cancer after apparent Extirpation, with Suggestions for its Prevention, and General Remarks on the Operative Treatment of Malignant Growths.* By HERBERT SNOW, M.D., Lond., &c., Surgeon to the Cancer Hospital, Brompton. London: J. & A. Churchill. 1890. Pp. 146.
2. *The Palliative Treatment of Incurable Cancer, with an Appendix on the Use of the Opium-pipe.* A Lecture delivered at the Cancer Hospital, March 7th, 1890, by HERBERT SNOW, M.D. J. & A. Churchill. 1890. Pp. 47.

1. WE can commend to all surgeons Dr. Snow's thoughtful and suggestive work on the Reappearance of Cancer. He objects—and we think rightly so—to the term "Recurrence." Cancer is always primarily a local, not a constitutional disease. "Our bodies are wholly composed of cells or cell-products, of which primitive cells the amœba may be regarded as a type. These normally form one harmonious machine, whereof the central nervous system forms the central regulating power. When a cancerous growth is formed in the body (which invariably is at one spot only), the cell units at that point have thrown off their allegiance to the governing power aforesaid, and have commenced a quasi-independent existence as cells; living and multiplying henceforward at the expense of the body generally, as separate organisms." Some of these cells speedily wander out from the original focus into the surrounding tissues. Some of them also are carried by the lymph to the nearest lymph glands; subsequently others are swept by the blood-stream to distant organs. In these various situations they for a time give rise to no phenomena by which their presence is revealed; but if every one of them be not removed by some operative procedure, they will multiply and increase, and the cancer will show itself anew. This growth of a part of the original tumour in a new situation is best termed Reappearance—the word Recurrence conveys the idea of something that had temporarily ceased to

exist, and unfortunately carries with it the idea of constitutional origin.

The chief points on which Dr. Snow lays stress are:—

(1) There is a time when every cancer is local, and when operations may reasonably be expected to effect a permanent cure—*i.e*, at a time when the cancer cells have not wandered far into the surrounding tissues, and have not yet been carried by the lymph or blood to new localities. Delay in diagnosis and operation is fatal.

(2) We cannot be sure in any given case how far the cancer cells have extended. It is better, therefore, to remove a considerable amount of tissue; a large gaping operation wound, the edges of which cannot be brought together, and which heals slowly by granulation, is often better surgery than a small wound with edges in good apposition, which heals in a few days, but in the neighbourhood of which the cancer speedily reappears. "The prospects of a rapid convalescence may well be sacrificed to those of future immunity." If possible, too, the lymph glands next to the tumour should be excised; they probably contain cancer cells, even though not visibly or palpably enlarged. For example, in all cases of breast-cancer the axilla should be cleaned out.

(3) After the removal of any cancer the patient should be kept under close and systematic observation for about two years; if any nodules of cancer appear, they must be at once excised. If none appear within this time, there is reason to hope that the disease has been eradicated.

(4) Unless a cancer and its surroundings can be freely and fully removed, it should be let alone; it never pays to undertake heroic operations for malignant tumours.

Dr. Snow discusses at considerable length the operative treatment of cancer in various organs—tongue, breast, uterus, &c. He has had much experience in the treatment of this class of disease, having been for 13 years surgeon to the Brompton Cancer Hospital, and his views will well repay perusal. The book is well written and pleasant to read, and deserves to be in the hands of every surgeon.

2. In his lecture on the Palliative Treatment of Incurable Cancer, Dr. Snow calls attention to the fact that opium not only alleviates the sufferings of those who are thus affected, but also by means of its influence through the nervous system actually retards the

growth of malignant tumours. He holds that "in every case of malignant disease, irremediable by operation, or in which an operation has been performed with the prospect of eventual reappearance, the best mode of checking the disease and of prolonging life will be found in the induction, as speedily as possible, of the opium or morphia habit." He states that opium-smoking is in these cases a very good way of introducing the drug into the system, and gives an interesting description of the opium-pipe and of the mode of using it. The lecture is well worth reading.

While we agree to a considerable extent with Dr. Snow's views as to opium in these cases, we think he has expressed them in too vague and general a manner; and that, as put forward by him, they are liable to lead to dangerous abuses.

The Four Commencements. Valedictory Address to the Graduates, delivered at the close of the Fifty-third Session of the Medical Department of the University of Louisville, February 28, 1890. By J. M. Bodine, M.D. Louisville: J. P. Morton. 1890. Pp. 19.

An interesting, high-minded address, but couched in language rather too high-flown for an old-world audience. The Four Commencements are—"When we begin to be, When we begin to learn, When we begin to practice, and, When we enter the existence beyond the grave." Much advice is given as to the Third Commencement.

The concluding words are worth quoting:—"Pain cries for your help from its rack; disease summons you from its couch of distress; death intreats you to soften its pillow; *posterity beckons you to hand it to its cradle gently.*" The italics are not in the original.

The Elements of Sanitary Science; a Sanitary Handbook for India. By Surgeon-Major C. J. M'Nally, M.D. Illustrated. Madras: Printed and published by the Superintendent, Government Press. London: H. K. Lewis. 1889. Pp. 267.

This is a carefully compiled handbook, drawn up on the plan of Parkes' Hygiene, but less diffuse, and dealing with the subject almost entirely from an Indian standpoint. The author has brought his book well up to the present state of knowledge, and all his recommendations are of practical value; the style is clear, and when calculations are necessary they are worked out in an easily followed manner. A similar book on home hygiene would undoubtedly prove most valuable, and have a large sale.

Surgeon-Major M'Nally's handbook will be of use, not only to medical men and sanitary administrators in India, but to army medical men who have service in India before them.

Outlines of Practical Histology. By WILLIAM STIRLING, M.D., D. Sc., &c., Brackenbury Professor of Physiology and Histology in the Owens College and Victoria University, Manchester. With 344 Illustrations. Crown 8vo, pp. 339. London: Charles Griffin & Co. 1890.

THE well-known excellence of Professor Stirling's work is of itself a guarantee that his text-book of Histology would attain to a high standard of thoroughness. The number and quality of the illustrations, the clearness and conciseness of the explanations, and the fulness and lucidity with which methods of preparation and staining are set forth, combine to render the book at once a complete manual of the subject, and, at the same time, an indispensable companion for the laboratory. If we were to find a fault it would be with the wealth of illustration, unnecessary in many instances. The tendency is unfortunately too common amongst students to trust to their recollections of the pictorial part of their text-books to satisfy the inquiries of examiners, rather than to obtain a grasp of the subject by the study of actual preparations, and the use of the needle and simple lens—a pernicious practice fostered, we fear, to some extent by the present work. Pictorial microscopy is a necessary adjunct to teaching; it is a fatal obstacle to a student, who relies on it alone, ever becoming a competent histologist.

The book is divided into two parts. The first deals with the apparatus required, with the fixing, hardening, and embedding of tissues, the cutting and staining of sections, and the methods of injecting blood vessels and gland tubes. In the second part the student is brought, in thirty-seven lessons, through the greater part of human histology. Additional exercises are appended to each chapter, generally exemplifying different staining methods to be carried out by the student. Omissions that call for comment are the absence of descriptions of the prostate and of the lachrymal gland—the former, especially, in view of its pathology, of prime importance. The account also of Gram's method appended to Lesson I. is quite inadequate, and also inaccurate. It would be better, in a manual of histology, to leave the staining of bacteria alone, rather than to mislead the student by a partial account which would end only in failure. Apart from these defects, we have only praise for the book. It is certain to be popular with students; and the exhaustive accounts of the methods of research, fuller than in any other text-book, will certainly find it a place in the bookshelves of many older workers. The daily increasing importance of normal histology, as a branch of study necessary for a true knowledge of disease, is here fully recognised, and accordingly the work deserves a hearty recommendation.

Practical Chemistry for Medical Students, required at the First Examination of the Conjoint Examining Board in England. By SAMUEL REDCOE, D.Sc. (Lond.), F.I.C., F.C.S., F.G.S. London: H. K. Lewis. 1890. Pp. 55.

THE required tests and reactions are given in as short and simple a manner as possible, and render this a suitable handbook for elementary laboratory work. Of course, students may try to learn it off by heart, but they will find that much harder than working practically with it; and a judicious examiner ought easily to detect the difference of the resulting knowledge.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland, comprising Lists of the Papers read during 1889 *before Societies engaged for Fourteen Departments of Research, with the names of their Authors, compiled from Official Sources.* Seventh Annual Issue. London: Charles Griffin and Company, Exeter-street, Strand. 1890.

THIS Annual is not a mere list of the names of scientific societies. It gives accurate lists of the papers read before, or published by, nearly every society of importance throughout the kingdom. To the scientific workers' library it is as valuable as is Whitaker's Almanack or Hazell's Cyclopædia to a daily paper office.

All the departments of science are included in its classification—Astronomy, Chemistry, Geography, Biology, Agriculture, Law, Literature, Psychology, Archæology, and Medicine.

It is a record of progress, and a convenient handbook of

Reference, indispensable to all who are engaged in scientific work outside London. As a medical reference it is second only to the "Index Medicus," or "Revue Internationale de Bibliographie" of Dr. Rouvier.

The typography is good, and it possesses a splendid index.

A Manual of Clinical and Practical Pathology. By W. ESSEX WYNTER, M.D., B.S. (Lond.), M.R.C.P., F.R.C.S.; Medical Registrar and Medical Officer in Charge of the Electrical Department, Middlesex Hospital; and FRANK J. WETHERED, M.D. (Lond.), M.R.C.P., Assistant Physician to the City of London Hospital for Diseases of the Chest, Victoria Park. London: J. and A. Churchill. 1890. Pp. 310.

THE object of the authors in writing this work has been "to embrace in a convenient form a succinct description of the various methods which may be employed in the investigation of morbid changes both before and after death." They might justly have claimed for their work more than this; for in addition to describing the mode of examination, they have given an account of the pathological changes that are met with in the various secretions and discharges—urine, sputum, pus, &c., &c.—that a medical man is frequently called upon to investigate.

The first part of the work treats of Apparatus and Reagents, methods of Staining and Mounting, Section-cutting and Microtomes, &c.; there are several useful tables in which the mode of using various hardening fluids and stains can be seen at a glance. There is a very good chapter on the modes of preparing and staining the brain and spinal cord; the methods of Weigert and of Pal, and the Pal-Exner method are fully described.

The eyeball being a difficult object for examination, Mr. Treacher Collins, Curator of Museum, Royal London Ophthalmic Hospital, has written a chapter in which the best methods of preparing ophthalmic specimens are clearly and fully explained.

The second part of the book treats of the examination, microscopical and chemical, of urine, sputum, vomit, blood, &c. The last chapters describe the *post-mortem* examination, and the mode of preparing museum specimens.

This work is well written, and will undoubtedly be found very useful by many practitioners. We regret, however, that its authors did not see their way to make the clinical part—the chapters on blood, urine, &c.—more full and complete. Matters of every-day occurrence, such as the common urinary crystals, are described in every text-book on medicine; it is chiefly when something unusual and uncommon is met with that reference is made to a special work like this. Hence we think that somewhat fuller and more comprehensive articles on these subjects would be more useful. Again, it is a great loss that there are no references to original articles or bibliography worthy of the name, for the so-called bibliography is for all practical purposes a perfect farce.

The book is well written, and all practical directions are clearly given. It fills a place which is not occupied by any other work by English authors; and we feel sure that many medical men will find it most useful. We can cordially recommend it.

Transactions of the American Orthopedic Association. Volume I. Published by the Association. L. P. Kellogg and Son, 15 Milk-street, Boston, Mass., U.S.A. 1889.

THIS, the first volume of the Orthopedic Association, is most creditable to all concerned in its production.

Of the twenty-four contributions which the volume contains, all are above the average, and each one gives evidence of the author's familiarity with his subject and its literature.

The contributions cannot fail in being instructive and interesting to specialists and to physicians generally; some of them are of great interest, notably Dr. E. H. Bradford's paper, "Functional Torticollis from Defective Eyesight;" "Hæmatoma Oris as a Sign of Injury to the Spine in the Superior Cervical Region," by Dr. Lee; and Dr. Jones's paper, "Etiology and Pathology of Rhachitic Deformity."

American cities offer a large field for the study of orthopædic diseases, and the present volume gives a promise that a plentiful harvest of increased knowledge of these diseases and their remedies will be garnered by this infant Association, which has made such a good beginning.

THE ALVARENGA PRIZE.

THE Alvarenga Prize of the College of Physicians of Philadelphia, consisting of one year's income of the bequest of the late Señor Alvarenga, of Lisbon, has been awarded to Dr. R. W. Philip, of the Victoria Dispensary for Consumption and Diseases of the Chest, Edinburgh, for his Essay on Pulmonary Tuberculosis, which will be published by the College.

EVANS'S BLACK DROP.

Freed from NARCOTINA, a bitter analogous to Quinia, and freed from THEBAINA, a Stimulant analogous to Strychnia.

One Minim is equal to three of Laudanum.

Opium as an Anodyne, Antispasmodic, Astringent and Sedative, is so well known as to render any observations in reference to its uses unnecessary.

The preparation so long known as Braithwaite's or the Quaker's Black Drop, having become extinct by the death of the maker, and no other preparation now obtaining the confidence of the Profession to the same extent, J. Evans begs to submit to their notice his Drops, by the name of "Guttæ Nigræ, Evans," for which he solicits a trial, and their judgement; and would add that, as far as it has been tried, it appears to supply the place of Braithwaite's Black Drop, in the certainty of its action, unaccompanied by any Cerebral disturbance; and further, in many cases of Insomnia and nervous restlessness, it has exercised a calming and soothing effect which other preparations of this valuable drug had failed to produce.

Dublin, Rotunda Hospital,
29th September, 1865.

I have extensively tried a new preparation of Black Drop, sent to me by Dr. J. Evans, of Dawson Street. I consider it an excellent Anodyne, free from many of the disadvantages of common Laudanum, and quite equal in power to the former preparation so long known by the same name, but no longer in use.

JOHN DENHAM, M.D., L.R.C.S.I., Master.

Dublin, 9 Merrion Square, North,
27th October, 1865.

I have ordered the preparation of Opium (Black Drop), made by Dr. Evans, of Dawson Street, with very great advantage. It seems to agree with patients better than those Opiates which have been so long in the hands of the Profession, by not causing Sickness of Stomach, or uneasy sensations of the Head. t is very satisfactory as a powerful sedative. I have used this medicine freely in Steeven's Hospital, and in private practice.

S. L. HARDY, M.D.,
Physician-Accoucheur to and Lecturer on Midwifery and diseases of Women and Children, Steeven's Hospital; Physician to the Institution for Diseases of Children, &c.,

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14 Harcourt Street,
Dec. 8th, 1865

I have given full trial to a new preparation of Opium, designated "Black Drop," forwarded to me, sometime since, by Dr. John Evans, of Dawson Street. I had been in the habit of using the former preparation known by that name, so long as it could be procured, and I feel no hesitation in expressing my conviction that Dr. Evans' preparation fully equals, in all respects, that admirable anodyne.

JOHN RINGLAND, M.D., T.C.D., M.R.I.A.,
Fellow of the King and Queen's College of Physicians of Ireland; Senior Master of the Coombe Lying-in Hospital; Professor of Midwifery in the Ledwich Medical School.

EVANS'S STYPTIC

For Checking all Bleedings.

◆

The introduction of this preparation arose from the desire expressed by several eminent Physicians and many Patients to obtain an efficient Styptic at a moderate price.

The efficiency of the above Styptic has been tested for many years by medical men in a variety of Hæmorrhages, whether from the Nose, Lungs, Stomach, or Bowels, and has met their approval.

Dose---In violent Bleeding from the Lungs, Nose, Stomach, or Bowels, a tea-spoonful, with a dessert or table-spoonful of water every hour, until effect is produced, then repeated according to the judgment of the medical attendant, every second, third, or fourth hour.

PULV. GLYCYRRHIZŒ COMP
(EVANS'S)

Prepared with Saccharin.
A useful purgative for Diabetic Patients.

ASTRINGENT LOZENGES

Prepared from Red Gum.

The "Enclayptus Rostrata" of Western Australia.

For loss of Voice,
Relaxed state of the Mucous Membrane of the Air Passage.
One, 5 or 6 Times Daily.

Effervescing Hydrobromate of Caffein,

WITH QUININE AND SODA.

Of great efficacy in Nervous Headache.

Dose—A tea-spoonful in half a tumbler of water, and drink during effervescence.

Larochelle's Coca Wine
PREPARED FROM PERUVIAN COCA LEAVES

(Erythroxylon Coca)

Recommended as a special stimulant of the nervous system, in cases of weariness from prolonged exertion, or the exhaustion consequent on long protracted illness.

Dose.—Half to one wine-glassful three or four times a day.

Only to be obtained at the MEDICAL ESTABLISHMENT,
49 DAWSON STREET, DUBLIN.

GLYCERINE SUPPOSITORIES.

For use in Constipation.

These Suppositories contain respectively half a drachm and one drachm of Pure Glycerine, and form a very convenient and portable way for administration by the Rectum, with less trouble than by the use of a Syringe.

JOHN EVANS,
State Apothecary.

By Special Appointment Chemist to the Queen, and H.R.H. the Prince of Wales.

49 DAWSON STREET, DUBLIN.

Established 1684.

PART III.

SPECIAL REPORTS.

SECOND REPORT ON

THE BACTERIOLOGY AND PATHOLOGICAL RELATIONS OF INFLUENZA.

By the Editor.

Several valuable contributions to the literature of Influenza have appeared in foreign medical periodicals since the Special Report on the subject in the number of this Journal for May, 1890 (Volume LXXXIX., No. 221, Third Series). We propose to give a summary of the most important of these papers in the form of a second and supplemental Report; and, in doing so, we must express our indebtedness to the pages of the *Centralblatt für klinische Medicin* for May 31 and June 14, 1890 (Nos. 22 and 24); of the *Fortschritte der Medicin*, Volume 8, No. 11, June 1, 1890; and of the *Centralblatt für die medicinischen Wissenschaften*, for June 7 and 14, 1890 (Nos. 23 and 24).

1. *On the Pathology of Influenza.*

Leyden, in a communication to the Medical Society of Berlin (*Berliner klin. Wochenschrift*, 1890, No. 10), reports in the first instance on a case observed by him of acute infectious nephritis after influenza, which ended fatally. The *post mortem* examination proved the existence of a pronounced glomerulo-nephritis. Among other noteworthy epiphenomena or secondary affections, Leyden saw heart-disturbances, collapse in convalescence, paralyses, and muscular atrophies. The pneumonias observed by Leyden showed a peculiar course—severe pain in the side and dyspnœa were rarely noticed; the local process was not altogether typical; frequently it was necessary to watch for three or four days before any evidence of a localisation of the disease was forthcoming; then a crepitating râle was heard over a wide area, and this perhaps the very next day would have disappeared to show itself in some other situation. Not very often a firm hepatisation occurred with clearly mapped out dulness. Again the typical sputum of pneumonia was often wanting. Bacteriological investigations revealed the presence of three kinds of micro-organisms—(1.) Diplococci, which represented the well-known pneumonia-diplococci of Fraenkel; (2.) Streptococci; (3.) Staphylococci. Leyden adopts the view that the forms of pneumonia are different—typical genuine pneumonias with deviating course; mixed forms, especially in those combined with pleural effusion; lastly, simple streptococci-pneumonias. Leyden considers that the question is not one of a localisation of the irritation of influenza in the lungs, but one of a growth of the well-known micro-organisms under the influence of that disease. In conclusion, however, it must be observed that Leyden's blood-examinations have yielded a negative result, and that he inclines to the hypothesis of a miasmatic spread of influenza.

2. *Further Remarks on Influenza.*

With the view of throwing light upon the peculiar or essential nature of the morbid process in influenza, Klebs (*Deutsche med. Wochenschrift*, 1890, No. 14) ranges himself on the side of those who regard the symptoms connected with the circulatory system as the most significant phenomena of that morbid process. As important arguments in favour of this view are to be adduced the ever-multiplying observations of grave thrombotic conditions, which in many cases determine the character of the disease from beginning to end. It may, however, also turn out that the apparently primary catarrhal and inflammatory phenomena, which, in the opinion of many, form the essential feature in the process, are nothing else than sequelæ of vascular obstructions in the region of the capillaries, which, while they lower the nutrition of the part, either lead to gangrene or create a suitable soil for the growth of pathogenic organisms.

In supplement to his earlier communications on the condition of the blood in influenza (see *Special Report*, Vol. LXXXIX., No. 221, Third Series, page 450), Klebs lays stress on the fact that, with the disappearance of the mobile forms, which are probably always supplied with flagella, granular masses appear in the blood, which cannot be regarded as other than descendants of the red and white blood-corpuscles and as resulting from their diminution. These consist partly of soft, finely-granular masses which, already decolorised in places, no longer contain nuclei of leucocytes capable of staining, and partly of vast numbers of large, generally somewhat serrated blood-plates, which stain deeply in Ehrlich's solution of methyl-blue and cannot possibly be confounded with micro-organisms. From these soft granular masses, which become further enlarged through the fusing together of others of the same kind, and the entanglement of decolorised red blood-corpuscles, uniform thrombus-masses form, which are constantly becoming more homogeneous, and in which are to be recognised only isolated, generally misshapen nuclei of leucocytes, outlines of red blood-corpuscles, as well as somewhat large fat-globules, which are probably derived from the substance of the leucocytes. The blood-discs have in these structures entirely disappeared, having probably dissolved and been melted down with the granular masses.

From this course of development of the blood-changes a considerable part of the various disturbances, at one time purely functional, at another leading to necrosis or inflammation, receive an easy interpretation. Klebs has now succeeded, by means of careful microscopical investigations, in establishing the correctness of his theory so far as the lungs are concerned, and he believes that he can explain the clinical phenomena of the lung-affections, which are so very variable, by the variations in development of the capillary thrombosis. Klebs has also further found capillary thromboses in the small intestine, the olfactory mucous membrane, and the processus vocalis of the arytenoid cartilage, which had led to ulcerations. He intimates that, perhaps as a result of investigations to be undertaken from this point of view, the *Nona* which is so puzzling will very likely permit of being equally easily explained on the supposition of a widespread capillary thrombosis in the brain.

3. *Further Bacteriological Communications on Influenza.*

Ribbert's (*Deutsche med. Wochenschrift*, 1890, No. 15) new bacteriological researches comprise three groups of diseases. The first embraces three cases of pneumonia, in which the *Streptococcus pyogenes* could be easily demonstrated. To the second group belonged two cases in which Ribbert was able to examine the pus of empyema taken from the living patient; in the first case numerous, in the second scanty, but typical, streptococci were found. The third group concerned cases of suppurative inflammatory affections of the osseous system after influenza. In the fluids evacuated by incision, Ribbert was able to demonstrate numerous streptococci, but no other micro-organisms where these were absent.

Ribbert's bacteriological investigations therefore on the whole yield the result that in all cases, in which micro-organisms were at all capable of demonstration, the *Streptococcus pyogenes*, and only once beside it a coccus, were found, which latter had a great resemblance to the *Diplococcus pneumoniæ*, and probably represented a modification of the same.

Ribbert accordingly discusses the possibility of a causal significance of the *Streptococcus pyogenes*, and from this hints that this microbe is capable of explaining the phenomena of Influenza. In the first rank are the inflammations of the lungs, whose peculiar, erysipelas-like spread, on which Finkler lays so much stress, and whose anatomical relations, admit of being referred back to the influence of the streptococcus. Scarcely less important do the lesions of the bones and joints appear to be.

Ribbert looks upon the presence of the *Diplococcus pneumoniæ*. which is so frequently demonstrable, as secondary in its occurrence.

4. *On Anatomical Conditions during the Influenza Epidemic.*

Kundrat's anatomical investigations (*Wiener klin. Wochenschrift*, 1890, No. 8) led to the following results:—During the Influenza epidemic affections of the respiratory organs showed themselves in individuals attacked by the disease, and these affections did not agree in all their phenomena, their course and termination, with the like diseases which usually occur endemically from time to time. They showed themselves as severe attacks of bronchitis with lobular and lobar inflammatory processes affecting the pulmonary parenchyma—with a termination in suppuration, necrosis, and gangrene on the one hand; induration on the other hand, complicated with attacks of suppurative pleuritis, pericarditis, and peritonitis, or followed by meningitis, suppurative encephalitis, and endocarditis, and even by pyæmic processes. These attacks of bronchitis are distinguished from the symptomatic bronchitis of other infective diseases by their frequency, diffusion, and intensity. They are comparable in relation to severe lung affections only with those severe attacks of bronchitis which develop through stagnation of the inflammatory bronchial secretion in cases of mechanical obstruction in the bronchial tubes.

Kundrat considers that these processes are peculiar to influenza.

and that they are indeed complications depending on a secondary infection.

5. *On Influenza.*

Pribram (*Prager med. Wochenschrift*, 1890, Nos. 10 & 11) had, as far back as the year 1875, an opportunity of studying an epidemic of influenza in Prague, which was, of course, less important than this year's outbreak. as it concerned only 129 cases, which further affected a quite defined, small circle of families. Even at that time (1875) Pribram was able to advance the following points :—

1. Influenza is a process which, even if the fever lasts for only a few days, holds the system enthralled for three or four weeks.
2. The fever accompanying influenza has an entirely specific character, and often shows the inverse type.
3. Influenza is no trifling malady, especially for the heart and the vaso-motor system, so that patients with heart-disease, particularly affections of the heart-muscle, are most seriously threatened by it.
4. Quinine proves itself to be of indisputable use in the treatment of influenza.
5. It is in the highest degree probable that influenza is transferable from person to person.

It was possible, for the most part, to confirm all these conclusions in the recent epidemic also. The contagiousness of the disease appears especially probable to Pribram. It would be easy to determine this question if we once knew the exciting cause of influenza. To the elucidation further of the question the study of the spread and mode of propagation of the disease may contribute. Among the 34 first cases which Pribram observed in the last epidemic there were not less than 29 in which it could be demonstrated that the patients had come into contact with individuals who had come from epidemic-stricken places, and there had intercourse with influenza patients. Pribram is, therefore, of opinion that there should be isolation on the first day of the outbreak of the disease at a given place, even if this could very seldom be thoroughly carried into effect. In any case, at least, an effort should be made to protect from influenza, by isolation, such persons as would be threatened with danger by the disease—children, old people, the tuberculous, and the subjects of heart-disease.

6. *The Influenza Epidemic in the District of Podersam.*

From Bratanich's communication to the *Prager med. Wochenschrift* (1890, No. 10) we should like to lay stress on some remarks of his respecting the influence of the situation of localities on influenza. Bratanich believes that, in general, the situation of the given place is, in itself, without significance, as regards the appearance of influenza—not so, however, for its mode of propagation. In districts with extreme dampness of soil the disease attacked, at one blow, like lightning, a relatively large number of the inhabitants; while in drier localities the malady spread only gradually; and a very high-lying locality, resting on rock, remained quite exempt. Again, the relative humidity of the atmosphere appeared to be not without influence on the spread of the disease, for by far the largest number of attacks occurred at the time of a continuous mist (or fog), with a relative humidity of from 98 to 100 per cent.; whereas on storms setting in, and during the clear days following thereon, a decided ebb in the epidemic might be noticed.

7. *The Lung-Complications of Influenza.*

Heitler (*Wiener klin. Wochenschrift*, 1890, No. 11) discusses the pulmonary complications observed in influenza, and comes to the conclusion that, in patients suffering under this disease, lung-affections occur which present a peculiar clinical course and peculiar anatomical appearances, and the connection of which with influenza cannot be disputed. Several cases of croupous pneumonia observed during the epidemic of influenza, when taken together with the anatomical conditions, make it appear probable that the exciting cause of influenza may also call forth a croupous pneumonia.

8. *Discussion on Influenza at the Swiss Medical Society.*

Having made some remarks on the spread of the influenza epidemic in Zürich, Eichhorst (*Korrespondenzblatt für schweizer Ärzte*, 1890, No. 5) next discusses the question of the contagiousness of the disease, which he is inclined to answer in the affirmative. Eichhorst has not instituted an investigation as to the mode of infection, but believes that the contagium is, in the first place, a general, a blood infection. As to a differential diagnosis of the various forms of the disease, he looks upon the division into a cephalic or cerebral, thoracic, and abdominal influenza as practical, but lays stress upon the fact that an especially severe implication of the nervous system was the characteristic feature in the late epidemic. This showed itself particularly in very serious nervous complications, of which Eichhorst had an opportunity of observing a large number—twice, symmetrical gangrene of the lower extremities; several times, acute mental disorders; and once, respectively, aphasia, chorea, paralysis of the bladder. Eichhorst has also paid attention to the condition of the temperature, and, nevertheless, insists that a large number of cases pass off entirely without fever.

In the discussion, Müller, who had observed a great many cases in the Medical *Poliklinik* and in private practice, expressed himself decidedly in favour of the contagiousness of the disease. Müller's youngest patient was 7 months old; his oldest was 76 years; while the largest contingent of the patients was supplied by the ages between 20 and 40 years.

Pneumonia was observed in 1·7 per cent. of the cases; it showed a peculiar course. Frequently also diffuse bronchial catarrhs appeared. Persons suffering from phthisis, emphysema, and heart-disease were very severely attacked.

Goll had seen 40 cases of relapse among 250 patients. It always set in with violent febrile symptoms and intense headache. Sore-throat (angina faucium) was very often observed. Enlargement of the spleen was a very frequent phenomenon from the 3rd to the 5th day of the fever. In more than 20 cases the urine contained albumen—generally, however, only in small quantity.

Heub referred to the occurrence of very tormenting dreams in the later period of the illness.

Zehnder spoke against the contagiousness of the disease; its explosive onset and the shortness of the incubation stage, which he declared to be only a few hours, would tell strongly against such a theory.

Krönlein had seen an acute suppuration of the knee-joint, as well as several cases of empyema, after influenza.

9. *Influenza a Rudimentary or Larval (Masked) Form of Pneumonia.*

Kühn (*Berliner klin. Wochenschrift*, 1890, No. 10) denies that influenza is, in general, to be regarded as a disease *sui generis*, but asserts that the whole epidemic must be considered as a pandemic dissemination of a disease resulting from the pneumonic infection, in which the most fully-pronounced pneumonias, with and without meningitis, represent the most complete development of the pneumonic infection; the light forms of catarrhal disease, the rudimentary and larval, or "masked," pneumonias. In demonstration of this peculiar assertion Kühn adduces, in the first place, the forms of the disease in individual families, which seem to us to prove nothing more than the contagiousness of influenza. Kühn seeks to adduce a second proof from the bacteriological method, by showing that Fraenkel's *Diplococcus pneumoniæ* is always present in influenza, and that, too, as an ætiological factor. By adopting this view, Kühn puts completely aside the investigations of other inquirers—for example, Ribbert (see above), who may be said to have found only the *Streptococcus pyogenes* in all forms of influenza. Lastly, Kühn thinks that a review of the course of the disease in influenza and in contagious pneumonia goes far towards investing his opinions with no small degree of certainty; for if we omit from the symptomatology of fully-developed contagious pneumonia the pneumonic sputa and the physical signs of the consolidation of the lung tissue, then all that is left will hold equally good for the symptomatology of influenza (?). To this strange view the observation of 600 separate cases has led the author.

10. *Influenza a Contagious Disease.*

Bäumler (*Münch. med. Wochenschrift*, 1890, No. 2), as a result of his observations, comes to the conclusion that influenza is a purely contagious disease of very intense infectiveness, and with a very short period of incubation. So far as the description of the disease is concerned, Bäumler has seen many cases which passed off without any catarrhal symptoms connected with the air passages, and partly resembled a true ephemeral fever.

Anton, also (*Münch. med. Wochenschrift*, 1890, No. 3), from independent observations made in the Medical Clinique at Würzburg, and followed up with great care, arrives at the conclusion that influenza is clearly contagious. In the greater number of cases the illness set in with headache and giddiness; nearly as often pains in the limbs and joints were present. Bronchitis showed itself in 59 per cent. of all the cases; digestive troubles showed themselves somewhat less frequently; in a still smaller number of cases blowing systolic murmurs were heard, especially at the apex of the heart. Enlargement of the spleen was present in one-fourth of all the cases observed on the male side of the hospital. Evidence that the kidneys were engaged was forthcoming only in 7 per cent. of the cases. Broncho-pneumonia was present in 4 per cent. of all the cases, pleuritis in 5 per cent.

11. *Types and Fever-curves of Influenza.*

Strümpell (*Münch. med. Wochenschrift,* 1890, No. 6) distinguishes four, it is true not sharply-defined, forms of influenza—the typhoid form, the catarrhal form (with more especial implication of the respiratory apparatus), the catarrhal form (with more especial implication of the digestive apparatus), and the rheumatoid form. As regards the disease in general, Strümpell distinguishes four principal forms of fever-curve—a trivial irregular fever of short duration, a severer form with high fever and two peaks (*fastigia*) in the temperature-curve, a high fever extending over several days with critical defervescence, and the persistent fever of complications. Catarrhal pneumonia, at least, as well as pleurisy, Strümpell regards as secondary infections.

12. *A Clinical Contribution on the Influenza Epidemic.*

Stintzing and Weitemeyer (*Münch. med. Wochenschrift,* 1890, Nos. 6, 7, and 8) have observed at least 405 clinical cases of influenza. As to the symptomatology of the disease, it may be mentioned as noteworthy that in two cases a pronounced erythema came under notice; in two other cases slight œdema of the eyelids, temporary heart-failure, as well as neurosis of the pneumogastric, neuritis, and neuralgias—especially of the fifth nerve. In 4·2 per cent. of the cases broncho-pneumonia was detected, frequently associated with pleuritis. In one case the diagnosis of a lobar pneumonia was verified by a *post-mortem* examination. At the same time the pneumonia could be essentially distinguished from the croupous form by its course and by the condition of the sputum. Stintzing further comes to the conclusion that certain chronic diseases mould the course of influenza unfavourably—such as advanced phthisis, emphysema of the lungs, affections of the heart-muscle. Just in the same way, these diseases might be unfavourably influenced by influenza. Possibly, also, advanced phthisis and heart-affections afford a predisposition to influenza.

13. *Observations made at Erlangen.*

Fleischer (*Münch. med. Wochenschrift,* 1890, No. 9) observed 476 cases of influenza in the *Policlinic* at Erlangen. The duration of the illness amounted to five days on the average. The temperature rose in severe cases to between 40° and 41° Centigrade (104° to 105·8° Fahr.). In three cases only was acute pneumonia observed in connection with influenza. One of these cases was followed by a pleuritis with effusion. In contrast to other observers, the spleen had never been found enlarged in the course of influenza. At the same time, influenza was often followed by typical malaria with splenic enlargement.

14. *Studies on Influenza in the Pregnant, those in Labour, and Lying-in Women.*

According to Amann, at the Female Klinik of the University of Munich (*Münch. med. Wochenschrift*, 1890, No. 9), the attacks of influenza in the pregnant were generally mild, yet occasionally the pregnancy was interrupted. The course of labour was on the whole delayed, as the pains were severe indeed, but little effectual. The puerperal state was not essentially interfered with. Examination of the blood and culture-experiments yielded no results. In two fatal cases Friedländer's pneumonia-cocci were found in the lungs.

15. *Proposals for the Prevention of Influenza.*

Gräser (*Berliner klin. Wochenschrift*, 1889, No. 51), starting with the fact that quinine has been recommended on various sides as a remedy against influenza, and has also stood the test in a conspicuous manner, and supported by his own experience, which he had acquired in the endeavour to prevent malaria in Eastern Asia, makes the proposal—which, of course, for the present has become quite purposeless—to exhibit a considerable dose of quinine, daily or every second day, at the first sign of the approach of the epidemic, particularly to people who live together in a confined space. He considered a daily dose of 0·5 gramme (7½ grains) as amply sufficient, given best in alcoholic solution.

16. *Characteristics in the Symptomatology and Course of Influenza.*

Dück, of Rimpar (*Münchener med. Wochenschrift*, 1890, No. 4, page 63), says that the only fatal case that occurred in a large district was that of a boy aged eleven years, who in the midst of the most complete consciousness, when the fever had already subsided and the malady had disappeared, suddenly suffered from an attack like apoplexy, to which he succumbed the following morning. A *post-mortem* examination not being permitted, an embolism or even a spontaneous thrombosis of one or more important cerebral vessels must be assumed as the cause of death. In another briefly described case, an intense urticarious exanthem appeared after the disappearance of the fever. In a case of relapsing influenza in a young girl, which presented by no means a high fever range, complete loss of consciousness was observed for an entire half day. Besides the foregoing also are to be counted as characteristics very intense toothache, pains in the eyes, attacks of otorrhœa, inflammation of the tympanic cavity, and twice such rigidity of the nape that with the persistent fever and headache the suspicion of a cerebro-spinal meningitis suggested itself.

17. *On some Symptoms and Complications of Influenza, together with Therapeutical Remarks.*

Elwert, of Reutlingen (*Medicin. Korrespondenzbl. des württemb. ärztl. Landesvereins*, 1890, April 2), used in influenza with good result chiefly codeïn and antipyrin—the latter in small doses in a mixture. He warns against very large doses of antipyrin, in consequence of two cases of antipyrin-poisoning, one of which he describes. A woman, in her thirtieth year, immediately after a dose of one gramme of antipyrin was seized with burning in her throat and through the whole abdomen, violent nausea with frequent vomiting, diarrhœa, great anxiety and gasping for breath, cyanotic coloration of the skin, cold extremities, fainting fits, apprehension of death, afterwards "violent burning and swelling of the skin." Recovery under stimulants and calcined magnesia. Dr. A. Freudenberg, of Berlin, who gives the foregoing abstract of Dr. Elwert's paper, adds that from the symptoms we should rather assume that the case was one of poisoning by antifebrin—this being all the more probable since the patient, following the bad habit everywhere acquired during the influenza epidemic, had provided the antipyrin on her own account.

18. *On the Relations of Influenza to the Organ of Sight.*

The new and essential additions which Bergmeister (*Wiener klin. Wochenschrift*, 1890, No. 11) makes to the list of eye-affections depending on influenza already made known, are the occurrence—(1) of paresis of accommodation, (2) of neuritis resulting in more or less pronounced atrophy of the optic disc in the stage of convalescence from influenza. In both accidents Bergmeister believes that we should recognise the analogy between influenza and the other acute infective diseases. The pareses of accommodation have the closest resemblance to the phenomena observed in diphtheria; atrophy of the disc has been observed in convalescence from typhoid fever as well as from measles and angina (sore throat).

19. *Tenonitis after Influenza.*

Fuchs (*Wiener klin. Wochenschrift*, 1890, No. 11) observed in the course of a fortnight one case of suppurative and three cases of non-suppurative *Tenonitis*—that is, inflammation of the space lying between the sclerotic and the fascia or capsule of Tenon. In the case of suppurative inflammation, as well as in one of the cases of non-suppurative inflammation, the connection with influenza was demonstrable with certainty, while in both the other cases, at all events, pronounced influenza had not existed previously. From the pus evacuated in the first case Fraenkel-Weichselbaum's pneumonia-cocci could be cultivated.

20. *On Disease of the Cornea in Influenza.*

Eye-affections as complications of influenza are by no means so very rare, yet they are restricted generally to the lids and conjunctiva. Hirschberger, of Munich (*Münchener med. Wochenschrift*, 1890, No. 4), describes in detail three observations of dendritic keratitis, of which two cases were observed in the Ophthalmic Hospital, one case in the General Hospital. In all three patients the absence of the reflex phenomena is noteworthy, as well as the impaired sensibility of the cornea. The beginning of the trouble fell between the third and fifth days of the attack of influenza. In all three cases one eye remained perfectly healthy. As then Horner and Fuchs have already suggested in connection with this that dendritic keratitis may develop from the febrile herpes of the cornea—a form of herpes which appears simultaneously with vesicles on the skin of the lips and of the nose; and since herpetic eruptions of this kind very frequently occur in influenza, Hirschberger believes that in the above cases also the ulceration of the cornea proceeded from similar herpetic vesicles. Although, also, it admits of no doubt that this corneal trouble is to be considered as a direct complication of influenza, yet it is not in any sense a characteristic epiphenomenon of that disease.

21. *On Psychoses after Influenza.*

Kräpelin (*Deutsche med. Wochenschrift*, 1890, No. 11) has observed a development of mental disorder after the departure of influenza in eleven instances. Among these were cases of simple psychical depression, of melancholia with delusions, acute states of exhaustion resembling the delirium of collapse, typical mania, and delirium tremens. The outburst of the psychical attacks regularly supervened at once upon the expiration of the bodily morbid phenomena; so also no elevation of temperature was ever noticed. The especially active cause of these psychoses was, therefore, apparently to be sought rather in the general enfeeblement of the organism than in the particular nature of the intoxication or toxæmia. The prognosis of these psychoses is very favourable; the treatment must be a generally strengthening one.

22. *On Grave Pulmonary and Pleural Affections in Influenza.*

Of the grave affections of the respiratory apparatus which appear in the course of influenza, Kahler (*Wiener klin. Wochenschrift*, 1890, No. 9) has observed three varieties as regards their course:—(1) As a direct result of a purulent bronchitis, or, in the area affected by a soft pneumonic hepatisation, an abscess forms in the lungs with a consecutive purulent pleuritis, which runs an unfavourable course—not infrequently also a purulent pleuritis is present, without any previous lung abscess. (2) A sneaking lobular pneumonia or pleuro-pneumonia of slow origin and very tedious course develops; this may subsequently drag on for weeks with varying ameliorations and aggravations, under certain circumstances with access of a serous or sero-hæmorrhagic pleural effusion. If the disease assumes the form of a grave pleuro-pneumonia, this may be distinguished by the evidently remitting fever with often-recurring night sweats, by the absence of a critical defervescence, and all the more from ordinary croupous pneumonia. (3) A serious bronchial affection may prove fatal, either alone or through a widely distributed consecutive affection of the pulmonary parenchyma (in the sense of a catarrhal, lobular pneumonia). In this case the diagnosis may fluctuate between miliary tuberculosis and influenzal bronchitis. The disease of the bronchial mucous membrane is to be regarded as a connecting-link between these different courses of the lung affections. On the intensity or nature of this bronchial catarrh seems to depend the issue whether other parts, such as the pulmonary parenchyma and the pleura, should be engaged. The result of these latter affections depends, lastly, on the constitution of the individuals attacked, so that persons previously very delicate and weakly (for example, the subjects of heart disease and diabetics) are endangered.

23. *Influenza Rash.*

A. Minauf (*Wiener med. Presse*, 1890, No. 12) observed in twenty-three influenza patients, from the second to the fourth day of the attack, or even after convalescence had already set in, the breaking out of a wheal-like pale-red eruption on the forehead, accompanied with a sudden rise of temperature and violent catarrhal symptoms affecting the conjunctiva, the pharynx, and the larynx. In about twelve hours this rash spread over the face, the trunk, and the upper extremities, moved along with marked tumefaction of the face (like the more severe form of a commencing attack of smallpox), and faded away after 24 to 36 hours, as a rule disappearing entirely, without any desquamation whatever, within three to five days.

24. *The Urology of Influenza.*

Under the title "Urologie de l'Influenza," M. F. Chappelle, *pharmacien*, read an interesting paper before the Pharmaceutical Society of Lyons, on March 1, 1890 (*Lyon Médical*, 1er Juin, 1890, Tome LXIV., Vingt-deuxième Année, page 155). According to Hayem, all influenza patients have urobilin in excess in the urine. Huchard finds in "la grippe" a constant diminution of phosphates. Fernet, on the other hand, finds an increase of both urates and phosphates. Gautrelet ascertains that in the urine of these patients there is some hyperacidity, and an increase of indican. M. Chappelle himself finds three constant facts in the urine of "la grippe"—hyperacidity, a notable excess of phosphoric acid, and richness in colouring matters (chromogens). Taking an average living weight of 60 kilogrammes (132 lbs.), the normal excretion of phosphoric acid in 24 hours is 3 grammes (46 grains). In the influenzal cases the numbers were 3·67 grammes, 6·80, 3·43, 4·20. 4·06, 5·11, 4·90, 4·20, 7·35, 3·67 respectively. These values prove an excessive elimination of phosphoric acid in influenza. M. Chappelle thinks that Huchard obtained his low values in consequence of the hyperacidity of the urine. In testing with uranium in a very acid medium, the final reaction with ferro-cyanide would not be complete if the experimenter had not taken care to neutralise the medium.

As to the question of chromogens, indican (which was pointed out by Gautrelet as being constantly present) was met with by Chappelle four times only among the eleven specimens examined.

As regards urobilin, influenzal urines, far from containing it in excess, are often wanting in it. Twice only did Chappelle get the characteristic green fluorescence with ammonio-chloride of zinc.

Nevertheless, all the urines examined were rich in a chromogen formerly described by Neucki and Sieber, and by them named "urorosein." This substance is revealed by a rose tint which urine assumes after from one to three minutes' contact with pure hydrochloric acid or dilute sulphuric acid. To 50 cubic centimetres of urine are added 5 cubic centimetres of sulphuric acid of the strength of 25 per cent., and some cubic centimetres of amylic alcohol. A beautiful red colour is obtained on shaking carefully. Alkalis and alkaline carbonates decolourise the solution of urorosein, acids reproduce the coloration.

A fact which is also to be noted is the presence in certain influenzal urines of a derivative of skatol conjugated with sulphuric acid, long since described by Brieger. This compound gives birth to a violet colouring matter by the reaction of the hypochlorites in hydrochloric solution. This substance, insoluble in ether, is soluble in absolute alcohol. Chappelle met with it on two occasions. In one of these two samples of urine he was absolutely able to determine, in the product of the distilled urine, skatol itself, easily recognisable by its stinking odour, and by the red needles of picrate of skatol which the ethereal solution of picric acid forms in the distilled product.

It seems impossible to keep pace with the ever-growing literature of Influenza on the Continent of Europe. In concluding this Report we can but give the titles of a number of papers on the subject, abstracts of which will be found in the *Centralblatt für klinische Medicin* for July 12, 1890 (No. 28).

1. Influenza. A Historical and Clinical Study. By Kusnezow and Hermann. Compiled from the Russian by J. von Drosda. (Wien: Josef Safár. 1890. Pp. 105.)

2. Bacteriological Investigations on Influenza. By Kowalski. (*Wiener klin. Wochenschrift.* 1890. Nos. 13 and 14.)

3. Influenza and Pneumonia. By Pantlen. (*Med. Korrespondenzblatt d. württembergischen ärztl. Landesvereins.* 1890. No. 10.)

4. Acute Hæmorrhagic Inflammation of the Tympanum: A Complication of Influenza. By Haug. (*Münchener med. Wochenschrift.* 1890. No. 3.)

5. Sur les Affections oculaires consécutives à l'Influenza. By Socor. (*Bulletin de la Société de Médecine de Jassy.* 1890.)

6. Des Formes Nerveuses de la Grippe. By Revilliod. (*Revue médicale de la Suisse rom.* 1890. No. 3.)

7. On Mental Disease after Influenza. By Pick. (*Neurologisches Centralblatt.* 1890. No. 4.)

8. Effect of Influenza on Mental Disorder. By Bartels. (*Ibid.* No. 6.)

9. Case of Mental Disorder after Influenza. By C. Becker. (*Ibid.*)

10. Cure of a Paranoia after Influenza. By M. Metz. (*Ibid.* No. 7.)

11. Two Cases of Secondary Disease after Recovery from Influenza. By Krause. (*Ibid.*)

12. Notes on the Influenza Epidemic in Moscow. By Lunz. (*Deutsche med. Wochenschrift.* 1890. No. 18.)

13. Report on the Cases of Influenza treated at the Military Hospital, Bucharest. By Antonin. (*Bulletin de la Soc. de Méd. de Jassy.* 1890.)

TREATMENT OF SIMPLE FRACTURE OF PATELLA BY WIRING.

Dr. Charles Phelps gives (*New York Medical Journal*, May 31, 1890) a series of forty-two cases of simple fracture of the patella which he treated by wiring. During five years only three cases were rejected as unsuited for the treatment. The incision follows the sulcus made by the separation of the fragments, and reaches nearly from one transverse ligament to the other; the joint is freely opened. Coagula and intervening fibrous tissue are removed upwards, and the fragment drilled and brought together by the largest size pure silver wire. The wire may pass completely through each fragment, and if a slot be cut in the cartilage of incrustation for its reception it will be covered in and cause no further trouble. The wire is not subsequently removed. The capsule is closed by a continuous suture, and finally the superficial wound is closed, four or five horse hairs being inserted to facilitate possible drainage. Only one of the cases was not completely successful.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Samuel Gordon, M.D., F.K.Q.C.P.I.
General Secretary—W. Thomson, M.D.

SECTION OF PATHOLOGY.

President—E. H. Bennett, M.D.
Sectional Secretary—J. B. Story, F.R.C.S.I.

Friday, January 10, 1890.

The President in the Chair.

Exhibitions.

Dr. M'Weeney exhibited a number of pure cultures and microscopic preparations of certain pathogenic and non-pathogenic organisms from the laboratory of Professor Koch of Berlin.

Mr. Story informed the Section that the General Council of the Academy had granted a sum of money for the purchase of microscopes, by means of which pathological preparations could be exhibited at meetings of the Section in a better way than had been possible heretofore.

Dr. Patteson was under the impression that the micrococcus tetragonus was one of the anaerobic species which would not flourish in the presence of air, and that it was therefore not likely to develop within the walls of abscesses in the lung. He therefore thought that its culture should proceed accordingly, and was inclined to question the fact that Dr. M'Weeney's preparation was a pure specimen of the variety in question. He was inclined to believe that the supposed micrococcus tetragonus was one of the more common micrococci, arranged in tetrads, especially where the characteristic capsules were absent.

Dr. M'Weeney, in reply, said that, as to Dr. Patteson's remarks about the micrococcus tetragonus, he was obliged to quote against him the opinion of Dr. Koch's first Assistant, Dr. Fränkel, who in his book, "Grundriss der Bakterienkund," stated that the micrococcus tetragonus was aerobic, and did not succeed except in the presence of abundance of oxygen.

Case of Injury to the Liver.

Mr. Bernard submitted a case of injury to the liver from a crushing blow inflicted by a laden cart. There were two contusions of the upper surface, and an extensive laceration of the Spigelian lobe. Before death the temperature had been high, and the urine contained sugar.

The **President** mentioned a somewhat similar case in his own experience where, as was usual in cases of intra-abdominal hæmorrhage, the individual lived for about five days and then sank—not from inflammation of the abdomen but from inflammation of the brain. He hoped to show a specimen from the case at the next meeting of the section. The present was a most valuable contribution to their knowledge of the subject, particularly with reference to a matter which he (the President) had overlooked, namely—the presence of saccharine urine as affording any evidence of rupture of the liver. He had dealt with a good many ruptured livers and he had never tested for sugar. How long did the patient live?

Mr. Bernard.—Forty-two hours and a-half.

Dr. Mason asked was the pain in Dr. Bernard's patient in both shoulders or in one only, and also what was the cause of the tympany of the abdomen.

The **President** said he was inclined to think that in a great many cases of liver injury the laceration was caused by the liver being pressed against the spine. The laceration of the Spigelian lobe in the present case had been undoubtedly so caused.

Mr. Bernard, in reply, said that both his shoulders were affected with pain, but he did not complain of any in the abdomen. His viscera were all healthy, and his intestines uninjured and full of flatus. Cases like this were shown to the Pathological Society—in 1875 by Mr. John Hamilton, who was of the same opinion as the President as regards the occurrence of pressure against the spine and the tendency of cleavage, and by Dr. Thornley Stoker in 1879.

The Pathology of Empyema.

Dr. H. T. Bewley read a paper on the pathology of empyema. He stated that this disease is due to the entrance of pus-producing micro-organisms into the pleural sac; that these organisms belong to several varieties; and they reach the pleural sac by different routes. Basing his classification on pathological grounds, he distinguished five varieties of empyema:—(1) When ordinary pyogenic micrococci made their way into the pleural sac through an opening in the chest-wall (perforating wound or septic puncture), or from the lung by the bursting of a pulmonary abscess or gangene into the pleural cavity. (2) Some cases occur in connection with croupous pneumonia, and are caused by pneumococci. (3) Some cases occurring in persons afflicted with phthisis are tubercular. (4) Under various circumstances pyogenic micrococci are able to enter and live for some time in the tissues of the human body without doing any harm. If, however, any part of the body is sufficiently injured by inflammation or in any other way, the micrococci become able to multiply in this weakened spot, and produce suppuration. In this way we must explain the conversion of serous into purulent effusions when no lesion of the chest-wall or of the pulmonary pleura exists. (5) Some cases are a part of a general pyæmia.

The **President** remarked that some months ago, on reading experiments by Koch in connection with the production of osteo-myelitis by the feeding of animals on putrescent matter, it occurred to him that clinical observations made in this city some years before micrococci were thought of had led to the same conclusion. Nearly twenty years ago his late colleague, Sir Edward Sinclair, said to him: "If you want to produce puerperal fever in a recently-delivered patient, your surest way of doing so is to let her eat game." Game which had come to the city was generally pretty high.

Dr. M'Weeney asked information from Dr. Bewley—namely, as to whether empyema might be produced by tubercular bacilli or the bacilli of acute pneumonia. Empyema was a collection of pus in the pleural cavity. Could tubercular bacilli or the bacilli of acute pneumonia produce pus in the ordinary sense of the word? If he was right in his idea that empyema was a collection of pus in the pleural cavity it should, according to ordinary conceptions, have been produced by the staphylococcus pyogenes, aureus or albus, or the micrococcus pyogenes.

Mr. Doyle remarked that in the expectoration of a patient he had under his care for catarrhal pneumonia he discovered quantities of very minute bacilli. He had never found them in cases of croupous pneumonia.

Dr. Graves said it was a well-known fact that in children tubercle could exist for a number of years on the surface of the pleura without producing pus; and even afterwards, in the event of effusion taking place, there would still be no pus.

Dr. Myles said there seemed to be a good deal of hair-splitting on this question. The normal tendency in every case of tubercle was the production of pus.

Dr. Bewley, in reply.—Taking the observations of Dr. M'Weeney and Dr. Patteson together they had mentioned two organisms—the pneumonia coccus and the tubercular bacillus. As to the first of these Professor Fränkel in his book stated that he had found a pure cultivation of it in the pus of several cases of empyema; and in some of his papers he stated that the organism in question was one of those that produced empyema, and on that account a peculiarly favourable prognosis was afforded in cases in which it occurred. As to the tubercular bacillus he (Dr. Bewley) believed it had the power of forming pus. Many old-standing abscesses that were met with in connection with carious spine were now being regarded as tubercular in their origin; and in discussions which took place in Berlin a year and a-half ago several cases were mentioned in which either no organisms were found or else only those of tuberculosis. As to the mode in which these organisms acted on the pleura he could not exactly speak. Other organisms might get in and afterwards die out, for in some long-continuing abscesses it was found that the organisms which caused the abscess died out. At the discussion to which he alluded others as well as Dr. Fränkel appeared to consider that the organisms were the cause of the empyema, or in other words of the pus.

The Section then adjourned.

SECTION OF OBSTETRICS.

President—S. R. Mason, M.B., F.R.C.S.I.;

Sectional Secretary—Andrew J. Horne, F.K.Q.C.P.

Friday, March 7, 1890.

The President in the Chair.

Exhibitions.

Mr. O'Callaghan exhibited a spindle-celled sarcoma of the broad ligament. He removed it from a patient some time ago, and had already given details of the case in a paper. When he cut into the growth the hæmorrhage was brisk, but he enucleated quickly, twisted the remains of the covering together, and tied them. No immediate bad symptoms ensued; but the tumour recurred in nine months afterwards, and the girl died of it. Dr. Purser examined it and pronounced it to be a spindle-celled sarcoma. Such growths were very rare.

Mr. O'Callaghan also exhibited a papilloma of the broad ligament. This had a broad pedicle, and was very marked in character when fresh. The woman had entirely recovered.

Mr. O'Callaghan also exhibited sub-peritoneal fibroids which he removed on the previous morning. There was quite a nest of them, and they showed what sometimes had to be encountered in the enucleation of fibroids of the broad ligament. They were all on the right side; and when commencing the operation he put on a Tait's rope clamp, and throughout the whole operation he had little or no hæmorrhage. On loosing the clamp, however, a brisk hæmorrhage took place from the right broad ligament. He removed the right ovary and tube and tied the broad ligament. None of these fibroids were associated with the uterus itself. Up to the present the woman had not had any bad symptom; and he had received a telegram saying that she was going on very well, and that her temperature was normal.

Successful Removal of a Large Fibro-cystic Tumour.

Dr. Macan submitted a case of successful removal of a large fibrocystic tumour.

The **President** said it was a form of tumour which was exceedingly difficult to remove; and operations for its removal by abdominal section had been heretofore unfortunately very fatal. He had operated in two cases himself.

Dr. Byrne remarked that Dr. Macan had not mentioned the reasons on which he founded the diagnosis that this was a fibro-cystic, as distinguished from a fibrous tumour or myoma.

Dr. Macan, in reply, said that in such cases there was every gradation of difficulty in the diagnosis from extreme ease to impossibility.

Three Cases of Rupture of the Perinæum.

Mr. Horne, the Secretary, read a paper by Dr. Kinkead, of Galway, detailing three cases of rupture of the perinæum.

Dr. Atthill said no person of experience now-a-days thought of treating severe laceration of the perinæum otherwise than by immediate suturing. The really important question was as to how rupture was to be prevented. Dr. Kinkead was perfectly right in saying that in the great majority of cases the occurrence of rupture was due to the condition of the perinæum, and to nothing else. The last case mentioned in the paper, in which the forceps ruptured the perinæum laterally, indicated that one of the safest modes of treating a rupture was by nicking the perinæum laterally pretty deeply on both sides. In that way he had often prevented extensive lacerations which would have given a great deal of trouble. These small incisions did not need suturing. They were quite different from a rupture in the centre of the perinæum, which would not unite.

Dr. Byrne said that he was not at all sure that the posture in which it was the practice in this country to place women for delivery was the right one, and that it did not conduce to laceration; but, looking on the pelvis as an outlet, he thought that, if women were allowed to select their own position, they would select a kneeling or stooping posture.

Dr. Smyly said that Dr. Bryce, in his work on Midwifery, said that, in normal cases, the obstetrician could do nothing but support the perinæum; and, therefore, if they could not save it, they could do no good, but might do a great deal of harm. He (Dr. Smyly) believed that a great deal could be done to save it by giving chloroform, which would lessen the bearing down. He thought that rapidity in the passage of the head through the vulva had a great deal to do with laceration, and was a more efficacious cause of it than size of the head.

Dr. Atthill said that supporting the perinæum did harm if any portion of it were pressed against the head; but if, as could be done in some cases, the hand were got in front of the edges of the perinæum, and the head pressed forward so as to take the strain off the edge of the fourchette, a good result would be attained.

Dr. Bagot considered that there were serious objections to making two lateral incisions. These lateral incisions were very often made quite unnecessarily. Sometimes when they were made, a laceration would commence from one of them, and the tear would be harder to stitch up than the others. If lateral incisions were made, they ought afterwards to be stitched up.

Dr. Macan said that rupture of the perinæum afforded a remarkable illustration of the differences of opinion that may exist with regard to an occurrence that was taking place daily under our observation. The question as to when the perinæum ought to be incised was an interesting one. If the left hand be passed between the woman's legs, and pressure exerted with the fingers on the child's head, while the tips of the fingers of the right hand are kept on the thin edge of the perineum, we can both see and feel when the perinæum begins to rupture. In this case an incision on one or both sides of the perinæum should be made, in order to prevent the rupture in the mesian line from extending towards the rectum. He considered that the sewing up of the perinæum after a bad rupture was an extremely difficult operation; and if a bad rupture occurred in the night-time, he thought the sewing of it should be deferred until next morning, when the operator could secure adequate assistance, and have the great advantage of daylight. Silk was extremely good for suturing, except where the rupture extended far up into the vagina. In such case the continuous catgut suture should be used, which could be sunk in the tissues, and, being absorbed, did not require removal. The old plan of after-treatment was to give opium, in order to prevent any motion of the bowels for some days; but he thought that a good loose stool every day was much better.

The **President** said there was one point as regarded the prevention of lacerations which he did not think anyone had alluded to. Whenever a perinæum was thought to be likely to give way, there should be fomentation of the parts and orifice before the head was permitted to come through. This should be done for half or three-quarters of an hour. He had stitched lacerations some hours after their occurrence, and the cases had turned out exceedingly favourably; and he quite agreed with Dr. Macan that if there was a bad laceration it was best to postpone the stitching until proper assistance and appliances could be had and the patient got into a proper position. The judicious application of chloroform in the second stage of labour very often prevented laceration from taking place.

The Section then adjourned.

Friday, May 23, 1890.

The PRESIDENT in the Chair.

Fibro-myoma of Ovary.

DR. BAGOT showed a fibro-myoma of the ovary, and stated that the tumour was of great interest and importance from a pathological point of view, because there seemed to exist a great difference of opinion as to the nature of that rare class of tumour—namely, the solid non-malignant tumours of the ovary. Some observers stated that they were fibromata, others that they were chiefly fibro-myomata.

Spencer Wells had met with but six examples, which he considered to be fibromata. Dr. Alban Doran, however, in his book on "Tumours of the Ovary, Fallopian Tube, and Broad Ligament," published in 1884, stated that he had examined one of these tumours, which had been presented by Spencer Wells to the museum of the Royal College of Surgeons, London, and that it was a leio-myoma, containing but little true connective tissue. All the solid that he himself had seen, removed at operations, were either carcinomata or sarcomata. Olshausen had described them as consisting of connective tissue, sometimes with a few muscular fibres; but the latter was always scanty. Martin agreed with him. Winckel stated that they were chiefly connective tissue growths. Waldeyer found no trace of smooth muscular tissue. Leopold and Wyder's observations coincided with Waldeyer. But Klebs and Tücke found muscular tissue, as did also Hartmann and Terrier. Dr. Bagot's case was as follows:—

J. D., aged forty-four years, married 20 years, had given birth to 8 children. Eight years since last pregnancy.

In December, 1889, she came to the Rotunda Hospital to have a pessary changed, as she had been wearing it for some time. The following conditions were found on examination:—Perineal laceration of first degree; external os patulous; cervix fissured; slight ectropion; uterus normal in size; fundus retroverted towards the left; left ovary normal. There was a tumour of the right ovary, somewhat larger than a walnut. Nothing else abnormal could be made out. The woman had been in bad health, and was complaining of various nervous symptoms; but as none of these could be distinctly traced to the ovary, and as it did not seem to be injuring her in any way, it was not interfered with. The patient had been under Dr. Macan's care since 1884, when the same diagnosis and prognosis had evidently been adopted. In March, 1890, however, the tumour was very much larger, and, as it grew so rapidly, it was thought advisable to remove it.

According, on March 27th, 1890, I removed it by an abdominal section. The patient made a perfect recovery, and all her former symptoms disappeared.

Dr. Earl kindly made a microscopical examination of the tumour and found the following:—

"The tumour consisted mainly of unstriped muscle, arranged in bundles. Adjoining bundles ran at right angles to one another. Traversing this tissue were numerous tracts of fibrous connective tissue, rather dense. They presented a somewhat insular appearance, as seen in the sections. Small blood-vessels could be seen here and there, and there appeared to be very thick external coats to these vessels."

Exhibitions.

Dr. W. J. Smyly exhibited an ovarian tumour complicated with malignant disease of the peritoneum. Her age was perhaps between fifty and sixty. When examined in the Rotunda Hospital on the 18th of April, a quantity of ascites was found, and also some small hard lumps in the posterior *cul-de-sac.* A hard tumour was also felt, and they diagnosticated malignant disease. She was in very bad health, passed almost no urine, and appeared to be dying; and she said she wanted to get home in order that she might die there. As no time was to be lost, he made an exploratory incision, from which a quantity of ovarian fluid came; and then he found the multilocular ovarian cystoma which was before them, and one cyst of which had burst. He evacuated the other cysts, and having pulled the tumour through, came upon a cancerous omentum which had grown to the tumour but without involving the inner layer of its mucous coat. In order to avoid injuring the cancerous omentum he cut all round it and tore off the mucous coat of the tumour. Then he found that the sigmoid flexure of the colon was adherent to it and could not be separated. This obstacle he dealt with in the same way as the other by leaving a portion of the cyst wall attached to the intestines. He then washed out the peritoneum with water and put in a drainage-tube until the next day. The woman made an uninterrupted recovery.

She left the hospital within three weeks and went home; though, of course, he only anticipated that the operation would prolong her life for a short time.

Dr. Smyly exhibited a cancerous uterus which he had removed per vaginam. The patient was an old woman of very cachectic appearance. The outer portion of the uterus was quite free; and as no disease of the broad ligament could be detected he decided to remove the uterus, which he did per vaginam on the 8th of the present month. It tore on being pulled down. A very fœtid discharge came from the uterus. The woman recovered without any bad symptoms. He believed that in the operation he injured the bladder, as urine had been discharged from the vagina since.

Dr. Smyly also exhibited a large fibro-myoma of the uterus. When the woman came to the hospital she had a large abdominal tumour, which appeared to be fluctuating. It reached down to the pelvis, and as far as the tuberosity of the ischium. When the finger was inserted into the vagina, it touched part of the tumour, and the uterus was drawn so far up that it could not be felt. The diagnosis they made was that it was a fibro-cystic tumour, but they were not certain about it. The symptoms were so urgent that the removal of the tumour was absolutely necessary, and on that day week he performed the operation. On opening the abdomen, the first thing he came on was the bladder, which was drawn up as far as the umbilicus, and was enormously thickened and hypertrophied. The process of dissecting down as far as the cervix was difficult and tedious. He used a blunt trochar in the operation in order to avoid hæmorrhage; but nothing came from the incision but serum. He enucleated the tumour, which weighed something over 11 lbs., tied the broad ligament in the ordinary way, and stripped the peritoneum off the tumour. He felt a good deal of doubt as to the best way of treating the hole left by the tumour, but eventually decided to put in iodoform gauze, and close up the hole. The objection to putting in a drainage tube was that when the stump should have become putrefied there would be an entrance into the abdominal cavity. The patient died on the second day after the operation. The ureters were as thick as his finger up to the brim of the pelvis, but from that on they were of normal size.

Observations on a New Speculum Illuminator.

Dr. More Madden read a paper on the above subject. [It will be found at page 121.]

Dr. M'Veigh was of opinion that the illuminator would prove of the greatest use, especially in making examinations in the evening.

Dr. Macan remarked that probably every gynæcologist had his own plan for getting through his work in the dark. For his own part, he did not find any difficulty in working with an ordinary lamp and reflector; and he did not know that the instrument now exhibited would prove much better. He had also used the ordinary electric light; but the objection to it was that the operator had to use one hand in holding it, while he manipulated with the other. He had not found any difficulty in working with an ordinary gas lamp. He was sure that the present instrument was a very capable one, but he did not think it a necessity.

Dr. Byrne said he considered Dr. More Madden's invention very ingenious and simple.

Dr. Bagot said the present instrument was liable to the same fault that existed in the case of others also, namely, that the light was between the operator and his work. For the purpose of an operation he thought that a lamp, or electric light with a reflector on the forehead, would be more effectual and less in the way.

Dr. More Madden, in reply, said he had found this instrument very useful not only in cases in the hospital with which he was connected, but still more so in private practice, inasmuch as some of the electric and other lights relied on for utero-vaginal examinations were troublesome to carry about, and were apt to go out without a moment's notice.

Dr. Macan read a paper giving an account of a case of ovariotomy during pregnancy.

The Section then adjourned.

SECTION OF SURGERY.

President—**Austin Meldon**, President of the Royal College of Surgeons, Ireland.

Sectional Secretary—Mr. **W. Thornley Stoker.**

Friday, May 9, 1890.

Mr. **Edward Hamilton**, F.R.C.S.I., in the Chair.

The Surgery of the Brain.

Mr. **Thornley Stoker** read a paper on two cases of brain disease, on which he had operated during the Session.

The first he detailed was treated jointly by Dr. O'Carroll and himself. It was a case of abscess in the right temporal lobe, depending on disease of the ear. Pain, retraction of the head, and right anosmia were the leading brain symptoms. The patient, a girl of eighteen, was dying from pain, and operation was determined on, although symptoms did not show clearly whether the temporal lobe or the cerebellum was the seat of disease. On March 9, 1890, the brain was exposed with the view of exploring the cerebellum, if pus should not be found in the temporal lobe.

The trephine opening was placed, with the purpose of exposing the second temporal convolution, with its centre one inch and a quarter behind the external meatus, and one inch and a half above this base line. Mr. Thornley Stoker spoke of the mistake made by Mr. Barker in placing the point to expose the second convolution too low down, viz., 1¼ above the base line, and he demonstrated, by a number of Prof. Cunningham's models and drawings, kindly lent for the occasion, that the point indicated by Mr. Barker could only expose at highest the inferior convolution, and might even endanger the lateral sinus. He expressed his intention in future of operating 1¾ inches above the base line, at which height only there would be reasonable certainty of exposing the second convolution.

Nine exploratory punctures were made in different directions, and on the ninth, at a distance of 1½ inches from the surface of the brain, pus was found, to the amount of two to three drachms, lying above the tentorium, in a direction downwards, inwards, and backwards from the trephine opening, at the junction of the under surfaces of the temporal and occipital lobes.

The patient, who had passed through several dangerous and interesting periods since operation, was now, three months after trephining, alive and doing well. And although she had lost several drachms of brain matter by sloughing and by the removal of a hernia cerebri, suffered no paralysis or impairment of any kind, the sense of smell being restored and all her symptoms relieved.

The second case, treated jointly by Dr. Nugent and Mr. Thornley Stoker, was one of a spindle-celled sarcoma, of small size, situated in the superior and back part of the right parietal lobe of a man, aged forty-two.

It had given rise to tonic spasms of the left side, commencing in the leg and gradually invading the trunk, upper extremity, and face. Spasm was followed by paralysis, occurring in the same order from below upwards.

The case was operated on, the leg and arm centres being exposed, but the tumour was not discovered, as it lay at the extreme back of the leg centre, and was of the same consistence as the brain substance, so that instruments passed through it without resistance. The removal of pressure afforded by the operation gave temporary relief. The patient, who was nearly comatose and quite hemiplegic, recovered consciousness, and partial power in the side, but died three weeks afterwards.

The chief points of interest in the case were:—1. The irregular position of the spasms, which sometimes engaged the upper extremity without the lower, although the tumour proved to be remote from the arm centre. Mr. Thornley Stoker dwelt on the matter, of what he termed "referred" pressure, as an important and confusing factor in such cases. 2. That the position of the tumour pointed to the extension backwards of the leg centre into what has been regarded as a doubtful region; 3. That the case showed the leg centre to be behind that for the thigh; 4. The absence in this instance of three of the four classical symptoms of brain tumour—viz., optic neuritis, fixed headache, and vomiting; only the fourth, hemispasm, being present.

Dr. Birmingham communicated a preliminary report of an investigation which he was carrying on, into the surgical anatomy of the parts engaged in the operations of trephining in mastoid and tympanic disease. The following were the chief objects kept in view in the investigation:—(1). The anatomy of Mr. Wheeler's operation, which opened the cranial cavity and the mastoid cells at the same time, by one trephine hole. (2). The exact relation of the mastoid antrum to the surface. (3). The position of the lateral sinus, how to find and how avoid it. (4). Whether there was (anatomically) any danger in opening the mastoid cells immediately behind the meatus. Many specimens were shown illustrating the points considered, and a full report was promised in a short time.

The **Chairman** observed that before brain surgery could make any steady, useful advance there must be something like anatomical certainty; and he regarded the contributions of Mr. Thornley Stoker and Dr. Birmingham as valuable anatomical data.

Mr. Patteson said he had himself, like Mr. Thornley Stoker, proved the unreliability of Barker's lines. He had had a case in St. Vincent's Hospital in which it was decided to trephine the temporal lobe of the brain; and taking a quarter of an inch higher than Barker's line in order to make perfectly sure, he had had great difficulty in removing the disc of bone, and when he succeeded he found that the lateral sinus was exposed, and occupying one-third of the available space, thus showing clearly that Barker's lines were unreliable. A limited *post-mortem* examination proved that the diagnosis was unfortunately incorrect, and that the case was one of longstanding otorrhœa; but the course adopted seemed to be the only possible one of saving life. However, as applicable to the surgery of the brain, the point was that the lines of demarcation chosen resulted in exposing about half an inch of the upper border of the inferior temporo-sphenoidal convolution.

Mr. Tobin, referring to Dr. Birmingham's observations, recalled Mr. Wheeler's remark on reading his communication to the Section as being to the effect that the opening which he made was one from which the tympanum might be reached, and not one for the purpose of exposing the tympanum. As regards Mr. Thornley Stoker's communication, he asked—assuming that in the first case detailed the abscess was secondary to caries of the temporal bone—whether it would not have been advisable, after reaching the abscess, to adopt means for getting rid of the primary disease, so that further secondary abscesses might not form. Thus, a secondary trephining operation might be adopted for the primary disease. Another moot point was as to the advisability of using the aspirator to empty a pus cavity of the brain, the tendency of the structure being to break down, and, from the use of the aspirator, to give rise to more pus.

Mr. Thornley Stoker, in reply, was glad to find that his observations had been endorsed by Mr. Patteson's experience. There could be no doubt that an examination of Prof. Cunningham's diagrams and casts would show, that instead of going an inch and a quarter above the horizontal line, as Barker recommended, or an inch and a half, as he himself had gone in one of the cases under consideration, the operator might go an inch and three quarters. He cordially agreed with Mr. Tobin's view as to the desirability of treating the primary disease; and in operating in the case of the temporal abscess, he was prepared to trephine the mastoid process with that object, but he did not find it desirable for several reasons. He looked forward to doing it, as at present the ear was suppurating, and required to be washed out twice daily with corrosive sublimate solution. It was obviously proper to remove the cause of the disease, as well as the secondary evidence of it. As regards the use of the aspirator, the case was one of the first in which he operated for an abscess in the brain, and he used the aspirator, but with the result that he made up his mind that he ought not to use it again; that it was calculated to do violence to structures, and that it was totally unnecessary. The brain exercised such pressure that as soon as the abscess was opened it closed the walls together, and the pus was pushed out with as much force as was desirable. So that the aspirator was unnecessary and might be injurious.

Dr. Birmingham, in reply to Mr. Tobin's remark, said he adopted Mr. Wheeler's published description as the basis of his observations.

Cholecystotomy.

Mr. Thomas Myles read a paper on Cholecystotomy. [It will be found at page 97.]

Mr. Franks said that in his case, which was a rare one of stricture of the common duct, the external wound did not close, and the patient retained the fistula; but he did not recommend, as Mr. Myles had suggested he did, a fistulous opening externally in preference to the original common duct. The result to the patient was more than a partial success; because she was about to die, and her temperature was 104° when the operation was done; and he therefore submitted that a fistulous opening was better than having no means of escape at all, except being absorbed into the blood. As regards the physiology of bile, what he contended was that his case showed that bile did not seem to be of so much value in the economic system as was generally supposed, and that it was rather an excrement than a secretion. The means by which Mr. Myles forced backward the stone from such a distance down in the common duct excited his admiration.

Mr. Myles briefly replied.

The **Chairman**, in announcing the close of the Session, said the Surgical Section had done a fair amount of work in advancing the art of surgery, for whose progress they were all concerned.

The Section then adjourned.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—Prof. Purser, M.D.
Sectional Secretary—Prof. Birmingham, M.B.

Friday, January 3, 1890.

The President in the Chair.

The **President** expressed his acknowledgments to the Section for having elected him to the presidential chair for the second time.

The American Periglyph.

Dr. Brooks, in the absence of Prof. Cunningham, exhibited and explained the working of an American periglyph—an instrument by which geometrically correct projections may be drawn suitable for craniometrical work. Prof. Cunningham had been recommended the periglyph by Prof. Billings, on finding that he could not employ photography advantageously in working at casts of skulls.

Single Unilateral Sigmoid Kidney.

Prof. Birmingham exhibited, as an anatomical curiosity, a single unilateral sigmoid kidney found in a subject undergoing dissection. The condition is extremely rare. According to Mr. Morris, in 12,978 *post-mortem* examinations made in London hospitals, only one sigmoid kidney had been found; the proportion of horse-shoe kidneys in the same examinations was 1 in 1,600. Single kidney might result from (*a*) congenital absence of one kidney; (*b*) from atrophy of one organ; or (*c*) from fusion of two kidneys. If the fusion were complete, disc-shaped kidney resulted; horse-shoe kidney represented the smallest degree of fusion, and intermediate between the other two stands sigmoid kidney. In the specimen exhibited the left organ was nearly normal in position; attached to its lower and inner part was the right kidney, which extended down on the left side of the aorta almost to its bifurcation. There were three points of interest in the case relating to its production—(1) the hilum in each kidney was in front, but in the right kidney it was decidedly to the right side, contrary to the rule in these cases; (2) the ureter was in front at the right hilum; (3) the arteries of the right kidney were three—two came from the right side of the aorta and were dragged across that trunk; one came from the right common iliac. These facts would point to the conclusion that the right kidney was first developed to a certain point on the right side of the body, and that it was afterwards displaced to the left, when it became adherent to the left organ.

Two Specimens of Meckel's Diverticulum.

Prof. Birmingham showed two cases of Meckel's diverticulum, one of which was obtained at the *post-mortem* examination of a man whose intestine had been resected immediately above the diverticulum. In this case the diverticulum was hollow for about 1¾ inches; beyond this it was a fibrous cord attached to the back of the umbilicus. During the operation it was recognised, and it added somewhat to the difficulties of the case.

Topographical Anatomy of the Abdomen.

Dr. Brooks exhibited plaster models illustrating the topographical anatomy of the abdomen. He was led to the investigation of this subject by the contradictory accounts of the contents of the different regions of the abdomen found in our text-books. He explained the mode of producing the cast from frozen sections, forming a series of eight vertical pieces.

Abnormal Right Subclavian Artery.

Dr. W. Henry Thompson read a note on a case of abnormal right subclavian artery, which he exhibited. The vessel arose from the arch of the aorta near the junction between its second and third stages, and towards the posterior aspect of the vessel. It was fourth in order of the great stems—the two carotids and the left subclavian arising nearer to the heart than it. The artery then passed up behind the trachea and œsophagus to the right side of the neck, where it came to occupy the usual position. The right inferior laryngeal nerve was not recurrent. The thoracic duct did not cross over to the left side. It passed up to the right of the œsophagus and entered the junction of the right internal jugular and subclavian. The lymphatic duct was found on the left side. The right sympathetic formed an extremely well-marked annulus around the subclavian. The vestiges of the left superior vena cava were well marked—a pervious communication reaching from the superior intercostal vein of the left side to the vestigial fold and on to the oblique vein. The accepted explanation of the anomaly is that the fourth right fœtal arch suffered early obliteration on the cardiac side of the origin of the subclavian. Thus to reach the vessel the blood had to pass along the fourth left arch (aorta) to the junction of the two dorsal aortic roots and thence "up stream," behind the œsophagus and trachea to the subclavian. Thus the first part of the abnormal vessel is really due to a persistence of the right dorsal aortic root.

The practical bearings of the abnormality were briefly alluded to.

New Method of Exhibiting Topographical Anatomy of the Brain.

Prof. Frazer exhibited an extensive series of photographs of heads, illustrating the topography of the brain in the adult male and female, and also in the child. Measured tapes were laid on the heads, running in certain definite directions; these tapes were reproduced in the photographs, and by means of them the correct distances between various points on the photographs were arrived at. The pictures were composite, showing besides the tapes and the surface of the head the deeper parts of the same head at two different levels overlying one another—for instance (1) the surface with tapes; (2) the dura mater; (3) the surface of the brain and the convolutions, and so on, until every part as far as the corpus callosum was shown with its exact relations to the surface. According to this method the topography in the adult and young head showed a wonderful correspondence; there was not the sixteenth of an inch difference in any of the parts spread over the entire area of the brain. So that in any case any part of the brain could be located on the surface with perfect accuracy by means of a pair of compasses and the tapes guided by the photographs. Though the method may seem elaborate, it had been tried twice lately by an operating surgeon, who had opened the lateral ventricles with the assistance of the photographs. The production of the present results had occupied the exhibitor for seven years.

The **President** said no such display of photographs had been shown by any other exhibitor.

Prof. Birmingham asked whether Prof. Frazer meant to convey that the proportions between the different divisions of the brain were the same in the adult as the child, or that the relations of the different parts of the brain to the surface were the same in youth as in adult life.

Prof. Frazer said that he meant to convey that *both* the proportions of the divisions to one another, and the relations of the different parts to the surface, were the same in a child as in an adult.

Dr. Patteson asked upon what principles the tapes were laid down on the head. There were few regions of the brain open to surgical interference, and if the simple methods of Hare, Reid, and Horsley afforded a means of arriving at these regions he failed to see the advantage of Prof. Frazer's elaborate illustrations.

Prof. Frazer, in reply, said that the method of applying the tapes was the only one by which an oval head could be mathematically divided. His experience was not extensive enough to say whether those lines laid down would hold good through all kinds of heads, especially deformed heads; but so far as he had investigated the lines held exactly to a hair's breadth through the whole outer and inner surface. The series of photographs had been made from nature, once for all, and they showed the relations of the brain to the skin: it was for the practical surgeon to get assistance from them if he could.

Nerve Supply of the Extensor Brevis Digitorum Manus in Man, and Valvulæ Conniventes in Man.

Dr. Brooks read two short papers. In the first he pointed out the nerve supply of the occasional muscle in man—the extensor brevis digitorum of the hand. He could find no record of the nerve supply reported by any other anatomist, and he showed a specimen of the muscle lately found in the dissecting room of Trinity College, with a well-marked nerve from the posterior interosseus of the forearm: he had previously observed a similar condition. He made some remarks upon the bearing of the nerve supply upon the homology of the muscle.

In the other paper read by Dr. Brooks it was pointed out that all our English text books of anatomy, and most continental works, except Henle, describe the valvulæ conniventes in man as crescentic folds of mucous membrane of the intestine, which extend as a rule no more than two-thirds round the intestine. Henle says that they may occasionally form complete rings. Dr. Brooks found, at least in the upper part of the jejunum—to which his observations had been confined so far—that the valvulæ conniventes frequently form complete rings, and sometimes spirals, extending more than once round the intestine. He exhibited several specimens in confirmation of this statement.

Prof. Birmingham asked if Dr. Brooks thought that so far as his investigation went that the majority of the valvulæ conniventes formed complete rings.

Dr. Brooks said that he had only examined the upper part of the jejunum, and so far as he had gone he thought the annules and spirals taken together were in the majority.

The Intraparietal Sulcus of the Brain.

Prof. Cunningham's paper upon the intraparietal sulcus of the brain was taken as read.

The Section having examined Prof. Frazer's photographs adjourned.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.K.Q.C.P.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, June 14, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	May 24.	May 31.	June 7.	June 14.		May 24.	May 31.	June 7.	June 14.
Armagh -	20·7	15·5	5·2	15·5	Limerick -	18·9	21·6	18·9	13·5
Belfast -	28·5	21·1	23·8	19·5	Lisburn -	9·7	0·0	14·5	14·5
Cork -	18·8	14·3	17·5	18·2	Londonderry	19·6	30·3	10·7	23·2
Drogheda	8·5	12·7	8·5	33·8	Lurgan -	20·5	35·9	10·3	41·0
Dublin -	23·5	21·0	20·5	24·7	Newry -	7·0	3·5	28·1	14·0
Dundalk -	26·2	30·6	34·9	8·7	Sligo -	9·6	28·9	19·2	14·4
Galway -	43·7	16·8	43·7	20·2	Waterford -	23·2	13·9	13·9	18·5
Kilkenny	0·0	12·7	4·2	38·1	Wexford -	8·6	17·1	21·4	8·6

In the week ending Saturday, May 24, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 17·1), was equal to an average annual death-rate of 18·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·4 per 1,000. In Glasgow the rate was 24·0, and in Edinburgh it was 17·6.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 23·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·2 per 1,000, the rates varying from 0·0 in ten of the districts to 10·1 in Galway—the 13 deaths from all causes registered in that district comprising 3 from measles. Among the 127 deaths from all causes registered in Belfast are 5 from measles, 7 from whooping-cough (being an increase of 3 as compared with the number in the preceding week), 7 from enteric fever, and 3 from diarrhœa. The 11 deaths in Londonderry comprise 2 from whooping-cough.

In the Dublin Registration District the births registered amounted to 235—114 boys and 121 girls; and the deaths to 162—84 males and 78 females.

The deaths, which are 11 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·9 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 23·5 per 1,000. During the first twenty-one weeks of the current year the death-rate averaged 31·7, and was 0·2 over the mean rate in the corresponding period of the ten years 1880–89.

Fifteen deaths from zymotic diseases were registered, being equal to the number for the preceding week, but seven under the average for the twenty-first week of the last ten years. They comprise 1 from typhus, 4 from whooping-cough, 3 from enteric fever, 2 from erysipelas.

Only 6 cases of enteric fever were admitted to hospital, being 7 under the admissions for the preceding week, and 4 under the number for the week ended May 10. Eleven enteric fever patients were discharged, and 40 remained under treatment on Saturday, being 5 under the number in hospital on Saturday, May 17.

Only 1 case of typhus was admitted, against 7 admissions in the preceding week. Two patients were discharged, and 10 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

As in the preceding week, no cases of scarlatina and only 2 of measles were admitted to hospital; 4 cases of the former and 6 of the latter disease remained under treatment in hospital on Saturday.

Thirty-three deaths from diseases of the respiratory system were registered, being 3 above the average for the corresponding week of the last ten years, and 9 over the number for the week ended May 17. They comprise 23 from bronchitis and 6 from pneumonia or inflammation of the lungs.

In the week ending Saturday, May 31, the mortality in twenty-eight large English towns, including London (in which the rate was 16·1), was equal to an average annual death-rate of 17·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·3 per 1,000. In Glasgow the rate was 28·4, and in Edinburgh it was 19·6.

The average annual death-rate in the sixteen principal town districts of Ireland was 20·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·8 per 1,000, the rates varying from 0·0 in eight of the districts to 10·3 in Armagh—the 3 deaths from all causes registered in that district comprising 1 from whooping-cough and 1 from diphtheria. Among the 94 deaths from all causes registered in Belfast are 1 from measles, 2 from whooping-cough (being a decrease of 5 as compared with the number in the preceding week), 2 from diphtheria, 1 from simple-continued fever, and 3 from diarrhœa. The 5 deaths in Galway comprise 3 from measles.

In the Dublin Registration District the births registered amounted to 210—116 boys and 94 girls; and the deaths to 152—73 males and 79 females.

The deaths, which are 18 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·4 in every 1,000 of the estimated population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the district, the rate was 21·0 per 1,000. During the first twenty-two weeks of the current year the death-rate averaged 31·2, and was 0·1 below the mean rate in the corresponding period of the ten years 1880-89.

Fifteen deaths from zymotic diseases were registered, being equal to the number for each of the two weeks preceding, but 8 below the average for the twenty-second week of the last ten years. They comprise 2 from measles, 1 from influenza, 5 from whooping-cough, 1 from diphtheria, 2 from diarrhœa, 1 from dysentery.

Eleven cases of enteric fever were admitted to hospital, being 5 in excess of the admissions for the preceding week, but 2 under the number for the week ended May 17. Five enteric fever patients were discharged, and 46 remained under treatment on Saturday, being 6 over the number in hospital at the close of the preceding week.

Only 1 case of each of the following diseases—viz., measles, scarlatina, and typhus—was admitted to hospital. Six cases of measles, 4 of scarlatina, and 9 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 27, being 1 below the average for the corresponding week of the last ten years, and 6 under the number for the week ended May 24. The 27 deaths comprise 11 from bronchitis, 9 from pneumonia or inflammation of the lungs, and 2 from pleurisy.

In the week ending Saturday, June 7, the mortality in twenty-eight large English towns, including London (in which the rate was 16·4), was equal to an average annual death-rate of 18·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·0 per 1,000. In Glasgow the rate was 27·3, and in Edinburgh it was 16·9.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 20·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·5 per 1,000, the rates varying from 0·0 in nine of the districts to 16·8 in Galway—the 13 deaths from all causes registered in that district comprising 5 from measles. Among the 106 deaths from all causes registered in Belfast are 1 from scarlatina, 2 from whooping-cough, 2 from enteric fever, and 4 from diarrhœa. The 6 deaths in Londonderry comprise 1 from whooping-cough and 1 from enteric fever.

In the Dublin Registration District the births registered amounted to 182—95 boys and 87 girls; and the deaths to 145—72 males and 73 females.

The deaths, which are 29 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·4 in every 1,000 of the estimated population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 20·5 per 1,000. During the first twenty-three weeks of the current year the death-rate averaged 30·8, and was 0·2 under the mean rate in the corresponding period of the ten years 1880–89.

Only 12 deaths from zymotic diseases were registered, being 3 under the low number for each of the three weeks preceding, and 13 below the average for the twenty-third week of the last ten years. They comprise 1 from typhus, 1 from diphtheria, 3 from enteric fever, 4 from dysentery, 1 from erysipelas.

Thirteen cases of enteric fever were admitted to hospital, being 2 over the admissions for the preceding week. Five enteric fever patients were discharged, 1 died, and 53 remained under treatment on Saturday, being 7 over the number in hospital on Saturday, May 31.

Two cases of typhus, 1 case of scarlatina, and 4 cases of measles were admitted to hospital, against 1 case of each for the preceding week. Seven cases of typhus, 4 of scarlatina, and 8 of measles remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had fallen from 33 in the week ended May 24 to 27 in the following week, fell this week to 20, or 13 below the average for the corresponding week of the last ten years. The 20 deaths comprise 6 from bronchitis and 11 from pneumonia or inflammation of the lungs.

In the week ending Saturday, June 14, the mortality in twenty-eight large English towns, including London (in which the rate was 16·2), was equal to an average annual death-rate of 17·2 per 1,000 persons

living. The average rate for eight principal towns of Scotland was 19·9 per 1,000. In Glasgow the rate was 25·4, and in Edinburgh it was 16·9.

The average annual death-rate in the sixteen principal town districts of Ireland was 21·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·5 per 1,000, the rates varying from 0·0 in eight of the districts to 5·2 in Armagh—the 3 deaths from all causes registered in that district comprising 1 from diarrhœa. Among the 87 deaths from all causes registered in Belfast are 1 from scarlatina, 2 from whooping-cough, 2 from simple continued fever, and 1 from diarrhœa. The 10 deaths in Limerick comprise 2 from scarlatina and 1 from diphtheria.

In the Dublin Registration District the births registered amounted to 175—90 boys and 85 girls; and the deaths to 171—79 males and 92 females.

The deaths, which are 3 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 24·7 per 1,000. During the first twenty-four weeks of the current year the death-rate averaged 30·6, and was 0·2 under the mean rate in the corresponding period of the ten years 1880–89.

Fifteen deaths from zymotic diseases were registered, being 3 over the low number for the preceding week, but 8 under the average for the twenty-fourth week of the last ten years. They comprise 1 from typhus, 5 from whooping-cough, 3 from enteric fever, 2 from diarrhœa, 1 from dysentery.

The number of cases of enteric fever admitted to hospital is 9, being 4 below the admissions for the preceding week, and 2 under the number for the week ended May 31. Eleven enteric fever patients were discharged, 1 died, and 50 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

The hospital admissions include, also, 2 cases of typhus and 2 of measles, but no cases of scarlatina were admitted. In the preceding week 2 cases of typhus, 4 of measles, and 1 of scarlatina were received. Three cases of typhus, 3 of scarlatina, and 10 of measles remained under treatment in hospital on Saturday.

Twenty-eight deaths from diseases of the respiratory system were registered, being equal to the average for the corresponding week of the last ten years, and 8 in excess of the number for the week ended June 7. They comprise 13 from bronchitis and 9 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N. Long.* 6° 15′ *W., for the Month of June,* 1890.

Mean Height of Barometer, - - -	29·944 inches.
Maximal Height of Barometer (on 14th, at 9 a.m.),	30·375 „
Minimal Height of Barometer (on 30th, at 3 p.m.),	29·126 „
Mean Dry-bulb Temperature, - - -	57·4°.
Mean Wet-bulb Temperature, - - -	53·9°.
Mean Dew-point Temperature, - - -	50·7°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·370 inch.
Mean Humidity, - - - - -	78·8 per cent.
Highest Temperature in Shade (on 5th), - -	72·0°.
Lowest Temperature in Shade (on 7th), - -	43·2°.
Lowest Temperature on Grass (Radiation) (on 7th)	38·5°.
Mean Amount of Cloud, - - - -	65·7 per cent.
Rainfall (on 18 days), - - - -	1·930 inches
Greatest Daily Rainfall (on 11th), - - -	·362 inch.
General Directions of Wind, - - -	S.W., W.

Remarks.

A cloudy, showery, windy month, of average temperature and atmospherical pressure, and showing a marked preponderance of south-westerly and westerly winds.

In Dublin the mean temperature (58·1°) was slightly above the average (57·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 57·4°. In the twenty-five years ending with 1889, June was coldest in 1882 (M. T. = 55·8°), and in 1879 (the "cold year") (M. T. = 55·9°). It was warmest in 1887 (M. T. = 62·3°), in 1865 (M. T. = 61·0°), and in 1868 (the "warm year") (M. T. = 60·5°). In 1886, the M. T. was 57·5°, in 1888 it was 56·2°, and in 1889 it was 59·5°.

The mean height of the barometer was 29·944 inches, or 0·027 inch above the corrected average value for June—namely, 29·917 inches. The mercury rose to 30·375 inches at 9 a.m. of the 14th, and fell to 29·126 inches at 3 p.m. of the 30th. The observed range of atmospherical pressure was, therefore, 1·249 inches—that is, almost an inch and a quarter. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 57·4°, or 4·6° above the value for May 1890. Using the formula, *Mean Temp.=min.* + (*max.—min.* × ·465), the value was 57·6°, or 0·4° above the average mean temperature for June, calculated in the same way, in the twenty-five years, 1865–89, inclusive (57·2°). The arithmetical mean of the maximal and minimal readings was 58·1°, compared with a twenty-five years' average of 57·8°. On the 5th, the thermometer in the screen rose to 72·0°—

wind S.W.; on the 7th the temperature fell to 43·2°—wind, N. The minimum on the grass was 38·5°, also on the 7th.

The rainfall amounted to 1·930 inches, distributed over 18 days. The average rainfall for June in the twenty-five years, 1865–89, inclusive, was 1·817 inches, and the average number of rainy days was 13·8. The rainfall and the rainy days, therefore, were above the average. In 1878 the rainfall in June was very large—5·058 inches on 19 days; in 1879 also 4·046 inches fell on 24 days. On the other hand, in 1889, only ·100 of an inch was measured on 6 days; in 1887, the rainfall was only ·252 of an inch, distributed over only 5 days; in 1874 only ·405 of an inch was measured on 9 days; and in 1868 only ·677 of an inch fell on but 6 days. In 1888 the rainfall was as much as 3·045 inches, distributed over as many as 18 days.

High winds were noted on 15 days, but attained the force of a gale on only two occasions—the 3rd and 24th. Temperature reached or exceeded 70° in the screen on only 2 days, as compared with 17 days in 1887, only 1 day in 1888 and 10 days in 1889. Thunder was heard on the 11th and 28th, and hail fell on the 28th and 30th.

In the first week, the weather was chiefly favourable, although changeable with squally westerly (W., S.W., and N.W.) winds, much cloud at times, and heavy rains in Scotland and the north, west, and south of Ireland, as well as in the south of England on Wednesday. The barometer was generally low in the extreme N. and N.W., high over the Bay of Biscay and central Europe. In Dublin the mean height of the barometer was 29·921 inches. The corrected mean temperature was 56·7°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 56·6°. Rain was measured on three days, the total quantity being ·305 inch.

During the greater part of the second week the weather was in an unsettled showery state, and thunder and lightning often accompanied the showers in various parts of the United Kingdom. Areas of low pressure were found in the W. and N.W., but on Thursday, the 12th, an area of high pressure formed over the Atlantic and gradients for northerly winds became established. In Dublin the mean height of the barometer was 29·927 inches, pressure ranging between 29·430 inches at 6 p.m. of Wednesday (wind, calm), and 30·375 inches—the maximum for the month—at 9 a.m. of Saturday (wind, N.W.). The corrected mean temperature was 57·8°, the mean dry bulb temperature at 9 a.m. and 9 p.m. being 56·7°. Rain fell in measurable quantity on four days, the total fall being ·527 inch.

Changeable, cloudy, and at times showery weather prevailed during the third week—particularly in Ireland and Scotland. Some bright intervals were experienced in England. The barometer was relatively high over the Bay of Biscay, France, and Germany; relatively low over Scotland and Scandinavia. Hence the fresh westerly winds, and showers, and clouds of the period. On Tuesday morning, the 17th, a partial eclipse of the sun was well seen through passing clouds—the magnitude of the eclipse was 279 out of 1,000 parts. In Dublin the mean height of the barometer was 30·084 inches. The corrected mean temperature was 58·9°; the mean dry bulb temperature at 9 a.m. and 9 p.m. being 59·2°. Rain fell in measurable quantity on four days, the total amount being ·291 inch.

The weather continued very changeable, squally, and showery during the period ending Saturday the 28th. The general distribution of pressure was very like that observed in the previous week—that is, a relatively high barometer over the Bay of Biscay, France, and Germany, with low pressures to the northwestward and northward of the British Isles and over northern Europe. Hence, the prevalence of fresh westerly winds, clouds, and showers. The only serious depression observed was one which advanced rapidly towards the North of Scotland on Tuesday night, the 24th. It caused a disastrous gale in the Solway Firth, and in Scotland north of the Grampians—even in Dublin, the wind rose to the force of a moderate gale for a short time. Very heavy showers fell on Friday and Saturday, accompanied by some thunder locally, and hail was also observed about noon on Saturday, when the wind veered to N. In Dublin the mean height of the barometer was 29·981 inches. The mean temperature was 57·8°; the mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·6°. Rain was registered on five days—the total measurement being ·432 inch.

Sunday, the 29th, proved for the most part fine, but a brisk fall of the barometer took place as a depression, which was unusually deep for the time of year, advanced over the kingdom from W.N.W. On the 30th, heavy showers of rain and hail occurred and the barometer sank to 29·126 inches at 3 p.m.

The rainfall in Dublin during the six months ending June 30th has amounted to 13·413 inches on 94 days, compared with 10·576 inches on 97 days during the same period in 1889, 12·113 inches on 87 days in 1888, 6·741 inches on 67 days in 1887, and a 25 years' average of 12·313 inches on 95·4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in June, 1890, was 1·780 inches, distributed over 18 days. Of this quantity ·410 inch fell on the 11th, ·300 inch on the 5th, and ·150 inch on the 29th.

COCAÏN.

M. Bousquet (*L'Union Médicale*, April, 1890) reports unfavourable results following the use of cocaïn used hypodermically as an anæsthetic. He could not obtain union of the cut surfaces; sutures sloughed out; and in one case gangrene occurred. The operations had been performed with all antiseptic precautions.

PERISCOPE.

TUBERCULOSIS IN YOUNG INFANTS.

Dr. Kerley (*New York Med. Journal*, May 10th, 1890), gives an account of twenty autopsies upon cases of infantile tuberculosis. In seventeen there was a fairly even distribution of tubercle on the surface and in the substance of lung. In one the tubercles were confined to the left lower lobe, in another very few tubercles were found, and in the remaining case the lung was free. There was tuberculosis of the lung in every case but one, of the lung only, in two. In twelve of the cases there were cavities, at the apex in one case, in the lower portion of the upper lobes in three, in the right middle in one, and in the lower lobes in seven; in two of the latter the middle lobe of the right also contained cavities. The left lung contained the cavities in seven, the right in five. The organs were involved in the following order of frequency:—Lungs, 19; spleen, 15; brain, 11; liver, 9; intestines, 10; kidneys, 3: peritoneum, 1; pericardium, 1. The bronchial glands were enlarged in every case; the condition of the mesenteric glands was noted in fifteen cases; they were enlarged in every case, and cheesy and broken down in six. A positive tubercular history could be traced in only three of the cases.

APHASIA AND PARESIS FOLLOWING STAB WOUND.

At a meeting of the San Francisco County Medical Society, Dr. Morse brought forward a case of aphasia and paresis following from a stab with a penknife "just above the left frontal eminence." "Upon opening the skull, the point of the knife was found, as well as a very large clot beneath the dura mater; and after their removal the patient recovered consciousness, but was very unruly, and tore the dressings from his head."—*The Occidental Medical Times*, Vol. IV., No. 3.

QUANTITATIVE DETERMINATION OF SUGAR IN THE URINE.

Dr. C. W. Purdy (*New York Medical Journal*, March 8th, 1890) describes a modification of Schmiedeberg's test. The formula is as follows:—Sulphate of copper, 4·15 grammes; pure mannite, 10 grammes; caustic potash, 20·4 grammes; strong ammonia (sp. grav. ·880), 300 cc.; pure glycerin, 50 cc.; distilled water sufficient to make 1 litre. The solution should be made as follows:—Dissolve the sulphate of copper in part of the water, and add the mannite and glycerin. In another portion of the water dissolve the caustic potash, mix the two solutions, and, when cold, add the ammonia; add distilled water to make 1 litre. This solution is stable. One grain of grape sugar will reduce and disperse the blue colour of 25 cc. of this solution. The test should be applied as follows:—Into a four-ounce glass flask are poured 25 cc. of the test solution, to which are added 20 cc. of distilled water, and the whole is heated to boiling point; saccharine urine is slowly added, drop by drop, as the urine lightly bubbles. When the colour is discharged the amount of urine added must have contained ¼ grain grape sugar.

UNPROFESSIONAL CONDUCT.

In a bill for the regulation of medical practice lately introduced into the Legislature of the State of Oregon, U.S., which provides for the revocation of licences in cases of "unprofessional conduct," the latter is defined as follows;—First, the procuring, or aiding or abetting in procuring, a criminal abortion. Second, the employing of what are known as "cappers" or "steerers." Third, the obtaining of any fee on the assurance that a manifestly incurable disease can be permanently cured. Fourth, the wilfully betraying of a professional secret. Fifth, all advertising of medical business in which untruthful and improbable statements are made. Sixth, all advertising of any medicines or of any means whereby the monthly periods of women can be regulated or the menses re-established if suppressed. Seventh, conviction of any offence involving moral turpitude. Eighth, habitual intemperance.

TREATMENT OF ECZEMA IN THE OLD.

Dr. Bulkley gives (*New York Med. Journal*, May 8th, 1890), the following amongst other prescriptions for the treatment of eczema occurring in elderly people:—For generalised eczema—℞. Pulv. calaminæ præp. ʒii.; zinci oxidi, ʒiv.; acidi carbolici, ʒi. to ʒii.; glycerini, ℥i. to ℥iss.; liq. calcis, ℥i.; aquæ rosæ, ad. ℥viii.—M. For eczema about the head and face—℞. Acidi tannici, ʒi.; acidi carbolici, gr. v. to gr. x.; unguent. aquæ rosæ, ad. ℥i.—M. Or, ℞. Pulv. calaminæ præp. gr. xx.; zinci oxidi, ʒss.; tinct. camph., ʒss.; unguent aq. rosæ, ad. ℥i.—M.

SACCHARIN.

In Italy the manufacture and importation of saccharin have been forbidden, and its therapeutical use limited by decree. France, Spain, and Portugal have forbidden its importation. In Hungary the Public Sanitary Council has put forth the following resolution:—It is necessary and desirable that saccharin be excluded from commerce as a food or luxury, and for the following reasons:—1. Because it is not sugar, although by reason of its name and taste it may be made to pass with the public for sugar. 2. Because it possesses no nutritive properties, its physiological value as a food being *nil* in comparison with sugar. 3. Because its prolonged use leads to digestive disturbances. 4. Because its cheapness may lead to its substitution for sugar, as has occurred in other countries. There is, however, no objection to its being prescribed as a medicine. In Belgium a duty of 140 francs a kilogramme is levied on saccharin and on all articles containing more than 50 per cent. of it. In Holland it is expected a duty of 60 florins per kilogramme will be imposed.

ANKYLOSIS OF JOINTS.

DR. A. M. PHELPS discusses (*New York Med. Journal*, 17th May, 1890), the question of what produces and what prevents ankylosis of joints. From a series of experiments on animals he concludes that a normal joint will not become ankylosed by simply immobilising it for five months; and that motion is not necessary to preserve the normal histological character of a joint.

ANTISEPTIC MEDICATION IN DIPHTHERIA.

DR. WOODBRIDGE (*Practitioner*, June, 1890), recommends for a child twelve years old suffering from diphtheria, and with ordinary ability to retain medicine on the stomach, the following prescriptions:—℞. Tinct. ferri chloridi, ʒiss. vel ʒii.; potas. chlorat., ʒiss.; glycerini, ʒii. vel ʒiii.; aq. calcis, ad. ℥iv.—M. One teaspoonful every one to one-and-a-half hours. ℞. Sod. sulpho-carbolate (Monson's), ʒi. ℈ii.; spt. terebinthinæ, ♏ c; pulv. acaciæ, ʒiii.; aq. cinnamomi, ad. ℥iv.—M. A teaspoonful every hour or hour-and-a-half, alternating with iron mixture.

FRACTURE OF CLAVICLE, DUE TO MUSCULAR ACTION.

DR. A. B. M'KEE (*Occidental Medical Times*), reports a case of fracture of the clavicle, due to muscular action. The patient, a German, forty-nine years of age, a miner, whilst engaged in lifting a heavy weight from the ground, snapped the clavicle "about 2¼ inches from the centre of the supra-sternal notch." There was no history or evidence of syphilis.

INFLUENZA MORTALITY.

IN the State of New York the number of deaths in January last was 5,000 above the quinquennial average, greater by 2,000 than the mortality for July—the worst month of the year. The increase is due to the influenza epidemic, which began in December. Although only a few hundred deaths are directly attributable to the epidemic, its indirect influence was very great. Acute respiratory diseases caused thrice the average of deaths, and phthisis showed an increased mortality of 70 per cent., and the death-rate of nervous, circulatory, and digestive diseases increased from 37 to 40 per cent. "On the other hand," continues the *Boston Medical and Surgical Journal*, "the number of deaths due to zymotic diseases was less by 340 than in January, 1889, and the percentage of deaths of children under five years of age was less by about one-half.

Of the cities in the State, Albany shows the greatest death-rate—41·12. New York's rate was 34·44, and Brooklyn's 29·72. The largest death-rate in the State was in the town of New Rochelle, Winchester county—namely, 52."

CHRYSAROBIN.

Professor Kobert writes (*Practitioner*, April, 1890):—"It is to be remarked that the so-called chrysophanic acid is wrongly named; the drug employed, in Germany at least, is really chrysarobin. By a peculiar arrangement, it is laid down that the German druggist must dispense chrysarobin when the physician prescribes chrysophanic acid *for external use*. What he is to use when the acid is prescribed for internal use is left to his own discretion. . . . Chrysophanic acid is an oxidation product of chrysarobin, formed according to the following equation:—

$$\text{“}\underset{\text{Chrysarobin.}}{C_{30}H_{26}O_3} + 2O_2 = 3H_2O + \underset{\text{Chrysophanic acid.”}}{2C_{15}H_{10}O_4}$$

FAITH CURE.

The (N. Y.) *Medical Record* informs us that a deputation recently waited upon Coroner Rooney, of Brooklyn, and made the following oration:—"We are a committee of the people who worship in Temperance Hall, on Hamilton Avenue. Our people have been considering carefully the action of the authorities towards us. Last night we decided to ask God what we should do. We prayed long and hard. We asked for light. At last we saw the light, and now we have come to say that you are right and we are wrong. Hereafter, when we are sick we will call a doctor, as you and the law direct."

PARALDEHYDE FOR TRAUMATIC TETANUS.

A. Neosky (*Med. Obozr.*) reports a case of traumatic tetanus occurring in a man twenty-one years old, which he cured by the daily use of paraldehyde in doses of 6–12 grammes daily. In twelve days about 110 grammes of the drug was consumed.—*Les Nouveaux Remèdes*, April 24, 1890.

WHAT IS HOMŒOPATHY?

We learn from the (N. Y.) *Medical Record* that doubts exist among homœopathists as to the true principles on which their system rests. Fifteen years ago the N. Y. Commissioners of Charities and Correction set apart the Ward's Island Hospital for homœopathic practice, and constituted a Homœopathic Medical Board. Of the twenty-four members of the present Board five are not members of the County Homœopathic Society; and the Society has sent in a protest, asking the Commissioners to constitute a new Board, including none but declared homœopaths. In the references and discussion which ensued the President of the Board declared his belief that there is no exclusively homœopathic practitioner in New York; and many other facts were brought to light which show considerable uncertainty as to the bases of modern Hahnemannism. Several, if not all, of the disputants admit that homœopathy is *not*, now-a-days, faith in infinitesimals, or in "potentisation by trituration," but in the principle that, "like cures like." But even this is not a universal truth, it appears, or an absolute guide; it is only useful as "the best general guide in selecting remedies." This seems to be the modern homœopathic minimum.

IODIDE OF ETHYL.

DR. R. MAIN (*Les Nouveaux Remèdes*, 8 Mars, 1890) recommends inhalation of iodide of ethyl in the bronchitis of patients who at the same time are suffering from Bright's disease. He reports a case of a patient 70 years old in whom the best effects followed on its use.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Pepsin.

MESSRS. J. L. BULLOCK & CO., of 3 Hanover-street, Hanover-square, London, have submitted to us samples of two of their now well-known preparations of pepsin.

The first of these is the *Pepsina Porci*, of which the dose is from two to four grains. So long ago as August, 1870, Mr. Richard V. Tuson, F.C.S., then Professor of Chemistry at the Royal Veterinary College, and previously Lecturer on Chemistry at Charing Cross Hospital, spoke in the highest terms of this preparation in a paper on "Medicinal Pepsin," which appeared in the *Lancet*. Twenty years have but established the reputation of Bullock's *Pepsina Porci*.

The "Acid Glycerine of Pepsin" (*Glycerinum Pepsinæ Acidum*) has a sweet taste and agreeable flavour. It is of a bright straw colour and of definite strength, and may be combined with most medicinal substances which are compatible with acids. In its preparation advantage has been taken of the solubility of pepsin in glycerine to produce a convenient and desirable *liquid form* of this valuable medicine; whilst the preservative qualities of the menstruum confer upon the acid glycerine of pepsin the property of keeping for any length of time.

The preparation may be administered in doses of from one to two teaspoonfuls in a wineglassful of water with each meat meal. It is sold in 4-oz., 8-oz., and 16-oz. bottles, costing respectively four shillings, seven shillings and sixpence, and fourteen shillings and sixpence.

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MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

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ART. VIII.—*A Successful Case of Batty's Operation.*[a] By JOHN K. BARTON, M.D., F.R.C.S.I.; Surgeon to the Adelaide Hospital.

OF all the morbid conditions which the surgeon has to contend against none are so difficult to deal with as what has been called the hysterical condition. There is something at once so vague and, at the same time, so changeable that the name conveys to our minds no very definite idea, but rather a suspicion that the patient is shamming. Thus, if we are assembled round a bed examining a knee said to be the seat of disease, the moment the word "hysterical" is pronounced all turn away, as if the disease had vanished or become unreal, and at the same time treatment was at once useless and unnecessary; but, although the conditions are changed, yet disease remains, and that, too, more difficult of management than before. Changes due to inflammatory action are slight. Temperature may be normal, or nearly so, but at the same time the group of reflex signs of irritation are greatly increased, so as to assume the importance of a disease. Thus, in the following case reflex vomiting became so severe, so obstinate, so complete, that the patient sank to a very low state, and was for a long time supported only by nutritive enemata. The signs of inflammatory action were slight, but the reflex phenomena threatened the extinction of life. To me it seems that the hysterical condition adds greatly to the difficulty of the case, and demands closer study than it has yet received to enable us, when it is found complicating disease or injury, to turn at once to the proper line of treatment, so as to counteract that morbid sensitiveness which produces vomiting and reflex symptoms of all kinds, and which seems to upset the healthy balance of the mind itself, producing an exaggeration of symptoms, a craving for pity, and such a desire for sympathy that truth is quite overlooked in its pursuit.

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[a] Read before the Section of Surgery of the Royal Academy of Medicine in Ireland.

Now, when this morbid condition of the nervous system exists, or seems to exist, without any disease, it more properly comes under the care of the physician; but when it complicates, as it does in the majority of cases, an already existing disease—frequently inflammatory—then the nature of the preceding disease may place the case under the hands of the surgeon, and he will find it difficult to make out accurately the signs of the disease, marked as they are by the exaggerating reflex phenomena.

The reason which has induced me to preface the case I am about to relate with these remarks upon the complicating hysteria is that it seems to me that the result in this case aids us in forming a sound opinion as to the treatment which such hysteria demands—viz., *the removal of the exciting cause.* In all cases of hysteria there must be *an* exciting cause, but in such cases as this we know *the* cause whence the current of nervous irritation begins. Remove this and we cure the hysteria—all else is mere palliation; sometimes worse than useless. But a very curious phenomenon, illustrated also by this case, is the fact that the reflex hysterical symptoms do not *at once* cease when the cause is removed, but gradually disappear, sometimes starting up again, as if all had been in vain, but quickly subsiding, and finally disappearing.

CASE.—Mary M., aged twenty-six, was admitted into "Brooke" ward, Adelaide Hospital, on the 9th of October, 1888, complaining of an aching pain in the left side of the abdomen. This pain began a year ago, when returning from a long walk. She shivered and fainted, and when recovered from this she felt the pain for the first time, which had continued ever since, sometimes being of a shooting, darting character, extending to the back of the hips; at other times it is of a throbbing, burning character—but always present.

Family History.—Father died of consumption when patient was an infant. Mother, struggling to maintain herself and child, died of a *tumour* twelve years ago; no brothers or sisters; has been supporting herself as a servant of all work.

Present Condition.—A rather stunted, undergrown girl, with a furtive expression of countenance. The abdomen is swollen and prominent, tympanitic on percussion; in the left hypochondrium pressure causes her to wince, and when asked to point out the seat of the constant pain of which she complains she points to a spot two inches inwards from the spine of the ileum, and on a line with it, and adds that this pain frequently extends round to the outside and back of the hip on that side; when deep pressure is made on the place she indicates she complains greatly, and there can be no doubt suffers sharp pain. The left leg is the seat of pain, like cramp, and she states that she is not able to walk properly from the weakness of this leg. The catamenia are now regular and moderate, but have until lately been profuse, and appearing at intervals of two weeks. Bowels have been too free, diarrhœa being very easily provoked. Micturition has been frequent and very painful; sometimes she found it very difficult and slow. Her sleep seems very broken, and perspiration at night common. Her temperature on the day of her admission was 98·6°; her pulse, 70.

The following night, however, her temperature was 100·2°, and she had a restless night. The pain over the left ovarian region was more marked. A blister was applied over this spot, of the size of a half-crown piece, and kept on until it rose well. This day (that is, the day after her admission) she vomited a greenish fluid, but took her food through the day. Careful records have been kept of this case by Miss Harper, from day to day, from which I will summarise.

The diagnosis which was made was "inflammatory disease of the left ovary." How far this had gone—whether producing suppuration or not—there was as yet no means of saying; but the disease was plainly complicated with extensive hysterical symptoms, of which constant vomiting was the most serious. Sometimes a small blister over the left ovarian region was followed by relief to the vomiting, but when repeated again no relief whatever resulted. Another most distressing symptom was flatulent distension of the abdomen. This was always a sign of the irritation being worse, and was strangely variable—sometimes the abdomen was distended so as to look as if an enormous ovarian tumour was present, and soon afterwards not half the size.

As an illustration of her state I may take the note recorded upon January 5th:—"Patient was very much troubled by flatulence all yesterday, not being able to lie down for more than a few minutes at a time. Last night she was given a hypodermic of morphia, and slept very well after it. She vomited this morning. Her abdomen is a good deal distended and tympanitic, and pain is very bad at intervals. E. T., 99°; M. T., 98·8°."

On the 8th we read:—"Patient did not sleep at all last night on account of a severe pain in her back and left side. She vomited all through the day. This morning has taken a cup of tea, which she threw up at once. Her abdomen is greatly distended."

Her food at this time was cold chicken jelly, the only thing I found would be retained.

On the 25th of same month the note was:—"Patient was very ill all day yesterday, vomiting continually. She is a little better this morning, but can take *nothing*. Her bowels have been moved three times to-day. Her abdomen is distended and tympanitic."

Nourishing enemata were now resorted to, as all drugs to arrest the vomiting had failed. I may mention here that the bromides were tried in free doses, and for a time had a beneficial effect, but very soon lost their power.

The question of operation had been frequently discussed, and as often postponed because the symptoms varied so much from day to day. For days it appeared as if she was getting well, and that the case was *all hysteria;* but as time passed, and she continued getting weaker and weaker, I decided that the operation of removal of the ovaries, and all the parts about them found to be diseased, was the only treatment which would succeed, and should therefore be done. The nature of the proposed operation was fully explained to the patient, who willingly embraced the hope which the operation afforded her of relief, counting the inability to become a mother as no loss in her case.

Accordingly, on the 5th of February, 1889, the operation was performed as follows:—A short incision (3½ inches) was made in the linea alba, commencing just below the umbilicus, and the peritoneum opened to same extent. The left hand, well antisepticised, was at once passed down into the pelvis on the left side, and the uterus felt. Then very quickly the ovary was caught and drawn up out of the wound. It was found to be enlarged to the size of a small walnut, but more elongated, and presented a puckered, whitish surface, as if of a cicatrix. The Fallopian tube and broad ligament were studded with minute cysts. The pedicle of the ovary was ligatured with softened trout-gut suture both near the uterus and near the ovary, and divided between them. The Fallopian tube was excised in a similar way, and the pedicle dropped back into the pelvis. The hand was then passed down into the right side, and the ovary caught and brought up for inspection, when it was found to present also decided marks of inflammatory disease. It was therefore excised, and its Fallopian tube, in a similar manner to that employed on the left side;[a] and then the peritoneal cavity was thoroughly washed with a very abundant douche of the boric acid (1 to 20). This having been accomplished, it only remained to close the peritoneum and the wound, which was done in the usual manner, no drainage tube being inserted. Corrosive dressings were employed; a large common gauze-pad over all, and a flannel binder supplementing it. The patient, who had seemed very weak twice during the operation, which lasted an hour, rallied very soon, but a distressing sickness from the ether continued until the following day, when it subsided, and she began to take food. Her temperature never was higher than 100° after the operation, and although it continued very variable, yet on the whole it gradually settled down to the normal line. The wound healed soundly, under antiseptic dressings, without any suppuration. For some weeks after the operation she had occasional pain in the left ovarian region, and once or twice violent reflex vomiting, which subsided very soon, thus showing a marked contrast to the sickness previously, which was most obstinate and quite unaffected by remedies.

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[a] Dublin, Dec. 6, 1889.—The ovaries removed by Mr. Barton on microscopic examination showed an increase in the number and size of the blood-vessels, both arteries and veins. There were in places, especially near the blood-vessels, collections of small inflammatory cells (leucocytes). The whole appearance of the organs was that of chronic inflammation.—H. T. BEWLEY.

In three weeks after the operation she was able to leave her bed, and in the following month left the hospital.

She came to see me lately, and reported herself well. She was looking for a situation as a servant. I may add that her appearance bore out her statement that she was now able for the hard work of an under-servant. She had a little of the furtive look of the hysterical patient, and spoke and laughed in the same way; but knowing how ineradicable is the hysterical diathesis, I feel certain that the operation has done more for her than I ventured to hope when I proposed it, which I did to arrest the train of reflex symptoms which had reduced her to the most pitiable condition of weakness, and to arrest which medicine had proved useless. Not only had "oöphorectomy" done this, but had in less than three months transformed her from a hopeless sufferer to a strong girl, able to take her part in life and earn her own bread. Some may, on theoretic grounds, and the interference with "the sacred rights of a mother," object to and make little of this proceeding. My patient has no doubt whatever as to the good it has conferred upon her, and finding herself restored from acute suffering and most debilitating vomiting to health and strength, she is most thankful to find that the price paid for this restoration is the impossibility of pregnancy, which, in her case, would mean a return of all her worst symptoms, probably with premature labour.

Whether this operation of "oöphorectomy" is rightly termed Batty's operation or not does not much concern us. I believe Mr. Lawson Tait was one of the very first who performed it, as he undoubtedly is now its foremost advocate in cases of dysmenorrhœa and menorrhagia. Agnew has collected the particulars of 171 cases in which this operation has been performed, of which 139 recovered and 32 died, being a death percentage of 18·72.

This table was drawn up ten years ago, so that we may safely assume that many of the cases were not done with antiseptic precautions, and that therefore this percentage may be and is very much less now.

The morbid conditions for which Batty's operation has been done are exceedingly varied. They comprise not only all diseases of the ovaries themselves, both organic and functional, but many uterine troubles, more especially uterine fibroids, where the accompanying menorrhagia—which is really the only urgent or even serious symptom generally—may be arrested at once and permanently by the removal of the ovarian and uterine appendages, the "sacred rights of the mother" theory not being applicable here—as pregnancy is not likely, if possible—and the operation is recommended as a safe alternative for hysterectomy.

As the case I have had the honour of recounting does not bear on this part of the subject, I will now conclude by pointing out that the good obtained in this may be safely taken as that which may be expected in all such similar cases, and this was restoration of a young woman from a life of constant pain and violent reflex vomiting, which deprived her of all strength or power to help herself in any way, to a state of good health, cheerfulness, and usefulness—the price paid for this being, from her point of view, a great gain.

ART. IX.—*History of the Oral Instruction of the Deaf and Dumb.* By GEORGE M. FOY, F.R.C.S.I.; Surgeon to the Whitworth Hospital, Drumcondra.

AT a meeting of a Deaf and Dumb Society at Aberdeen, in the beginning of this century, one of the pupils was asked to mention some fact of interest in association with the city; he replied, "Aberdeen has the honour of being the birth-place of Dalgarno." No person in the audience knew who Dalgarno was, and it was only by further questioning of the pupil that the information was obtained.

Some few years ago a distinguished member of the medical profession in this city gave a public lecture on the oral instruction of the deaf and dumb, and he publicly asserted that we were wholly indebted to the Germans for the method. "A prophet hath no honour in his own country," and it seems as if the present race of medical practitioners cannot imagine any other source of medical progress than German. Our foregoers should not be robbed of their legitimate honours, and the theft is committed only by those who are ignorant of the past.

Within this year a pamphlet has been largely circulated, advocating oral instruction for the deaf and dumb; to this no exception can be taken, but the pamphlet speaks of the oral instruction as the German method. Thousands who read the pamphlet will accept the assertion as a statement of fact, and many forgotten worthies of Spain and England will be robbed of the credit to which they are justly entitled—of the introduction of that system of education which enables the deaf and dumb to eye, hear, and speak.

The first teacher I find mentioned as educating the deaf and dumb in lip-language—which he did with much success—was John de Beverley, who in the eighth century was Archbishop of York. He was one of the most learned men of his day, having been instructed by Theodore, Archbishop of Canterbury, and he was himself tutor to the Venerable Bede.

Beverley died in 741, having been for thirty-three years Archbishop. After his death the College—which he founded in 704, in the town of Beverley in Yorkshire, near to his native place, Harpham—absorbed all the attention of his successors, and the oral instruction of the deaf and dumb was forgotten.

The arrival of the Normans, and the stamping out of all old English institutions and customs, and the substitution of a system which made the lord of the shire the source of all power, and at the same time measured his power by the number of vassals he could summon to his banner during war, or drive to his fields during peace, was not calculated to promote physiological or psychological studies; and as every individual who suffered from any infirmity of mind or body was unsuited for vassalage, their extermination, not their education, was the baron's desire. The Dark Ages came—not alone in England, but throughout Europe. There was none to pity, and none to relieve the afflicted; all suffering came from God. "Who hath sinned, this man or his parents?" was ever the question when the helpless deaf and dumb peasant appealed for charity. Their affliction was a righteous judgment, and man should not mitigate the Divine decree.

Centuries passed; America was discovered, sulphuric acid made, printing was invented, and the Italian republics were sending thousands of scholars over Christendom. The seed was being sown broadcast that was soon to revolutionise thought throughout the world.

Of moderns the earliest to point out the possibility of educating the deaf and dumb was one who was educated in Italy—Rodolphus Agricola, one of the most learned and remarkable men of the fifteenth century. He was born in Baffeo, near Groningen in Friesland, in 1443. He commenced his education under the famous Thomas à Kempis, afterwards going to Louvain, and finally to Italy. Arriving in Ferrara in 1476, he was just in time to become acquainted with the Greek refugees, who were bringing to Italy the priceless manuscripts of ancient Greece, for which the citizen-scholars of the Italian republics were freely giving the wealth they had amassed by trade.

Of the many works published by Agricola the most celebrated is his "De Inventione Dialecticæ," in which he mentions that he had witnessed a person deaf and dumb from infancy, who had learned to understand writing, and was able to write down his thoughts.

In 1624 Hieronymus Fabricius, ab Acquapendente, Professor of Anatomy in Padua, the tutor of Harvey, published his folio edition of "De Locutione." The scheme of the work is fairly well shown by the heading of its first chapter, to wit:—"Quo loco in Anatome de locutione agendum; quis fit locutionis usus, præstantique: & quod Anatomicus non Grammatico, sed Philosophico more locutionem explicare debeat." About the same time in England Lord Bacon published some observations on "The Motions of the Tongue, Lips, Throat, and Palate in Speaking."

Some years earlier than either Bacon or Fabricius, Franciscus Vallesius—a celebrated Spanish physician—drew attention in his "Philosophia Sacra" (1590) to the success attending the instruction of the deaf and dumb by his friend, Pedro Ponce, a Spanish Benedictine monk, who was born in 1530 and died in 1584. His tomb is in the Convent of Onya, Old Castile.

A biographical sketch is given of this good and great priest, by Ambrosio Morales (*Antiguedades de Espanya*). One of Ponce's pupils, Don Pedro de Velasco, who died at twenty years of age, spoke and wrote Latin as well as his mother-tongue, and was, at the time of his death, studying Greek.

Don Pedro thus wrote of himself:—"When I was a child I knew nothing; I began first to write down the things which my master showed me, and afterwards I wrote down all the Spanish words in a book which was made for the purpose. Afterwards, with God's assistance, I began to spell, and then to pronounce with all the force I could, though much saliva came from me."

A pupil of Ponce's, according to Southey, became a Benedictine monk, and he was able to make confession and explain his creed by word of mouth.

Ponce wrote a treatise on the "lip-teaching" of the deaf and dumb. The treatise is lost, though it is generally believed that his ideas are embodied in the "Reduccion de las Lettras, y Arte para enseñar á hablar los Mudos" of Juan Pablo Bonet, published in 1620.

Bonet, like Ponce, was a Benedictine monk, and he continued the teaching of the deaf and dumb, meeting with the greatest success. And it is to his method—for he denies his indebtedness to Ponce—we may trace the teaching of to-day.

Bonet had, as his pupils, the two brothers and one sister of the Constable of Castile, and a son of the Gran Justicia of Aragon, all of whom were born deaf and dumb.

The Abbé de l'Epee described Bonet's books as "excellent guides," and through Sir Kenelme Digby, Dr. Wallis obtained a copy of them. Amman read Wallis's book, and communicated with Wallis, and thus the French, Dutch, and English teachers were directly indebted to Spain for their systems of education.

Bonet was fortunate in that his pupils attracted the attention of Charles, Prince of Wales, during his stay in Spain; and that the description of the examination of his pupils was given by Sir Kenelme Digby, a man so remarkable that a brief notice of him who seemed a combination of Defoe, Peterborough, and the Admirable Crichton, cannot fail to interest.

Born in 1603, Kenelme Digby was only three years old when his father was executed for participation in the Gunpowder Plot. Through the influence of his relative, the Earl of Bristol, he, on leaving college (1621), secured a place in the Spanish Embassy, and was in Spain when Charles, Prince of Wales, visited that country in search of a wife. He lived during the most troubled period of England's history, and died in 1665.

Author, diplomatist, and naval commander, Digby managed to keep in with all parties. James knighted him in 1662 at the house of Lord Montague, near Huntingdon, and Charles and

Cromwell both trusted and employed him as a political agent. He prayed with Laud, wrangled with Hobbes, was lampooned by Butler, corresponded with Descartes, was the confidant of Ashemole, the companion of Ben Johnson, and the husband of the fair, but frail, Venetia Stanley. Digby was described by his friend, Lady Fevershawe, as "a person of excellent parts, and a very fine-bred gentleman—with an infirmity of lying."

In medicine he is best remembered as the inventor of the "Sympathetic Powder," the formula of which was published in his tract, "A late Discourse made in a Solemne Assembly of Nobles and Learned Men at Montpellier in France, by Sir Kenelhme Digby, Knight, &c., Touching the Cure of Wounds by the Powder of Sympathy, with Instructions how to make the same Powder" (1658). Of this wonderful powder he writes that it would "Naturally and without any Magick, cure wounds without touching them, yea, without seeing of the Patient: I say, I should be very sorry that it should be doubted, whether such a cure may be effectually performed or no." He gives, as an illustrative case, that of Mr. Howell, whose hand was cut with a sword; and mentions King James' anxiety to learn the secret and know the history of the strange monk who travelled from the "Province of the Sun" to give the powder to Sir Kenelme, and departed for Persia immediately after he had imparted the secret. And yet, after such a circumstantial story, Dr. Nathaniel Higham, in 1651, denied that Digby had any claim to the discovery of the powder, which he asserts was the discovery of Sir Gilbert Talbot.

As a naval commander he was a great success—he defeated both the Venetians and the Algerines. As an author he is still read; his published works are:—

"A Conference with a Lady about the Choice of a Religion. Paris: 1638."

"Letters between Lord George Digby and Sir Kenelme Digby concerning Religion. London: 1651."

"Observations on Religio-Medici. London: 1643."

"Observations on part of Spenser's Fairy Queen. London: 1644."

"Treatise on the Nature of Bodies. Paris: 1644."

"A Treatise on the Soul, proving its Immortality. Paris: 1644."

"Five Books of Peripatetick Institutions. Paris: 1651."

"A Treatise of adhering to God. London: 1654."

"Of the Cure of Wounds by the Powder of Sympathy. London: 1658."

"Discourse on Vegetation. London: 1617."

He died in France, to which country, at the outbreak of the Civil War he transferred his library, having previously given two hundred odd manuscripts, handsomely bound, in eleven volumes, to the Oxford Library. His library became, on his death, by "Droit D'Aubaine," the property of the French king.

During his stay in Spain, in the service of Charles, Prince of Wales, he met the younger brother of the Constable of Castile, and of him he thus writes:[a]—"The Spanish Lord was born deaf; so deaf, that if a gun were shot off close by his ear, he could not hear it; and consequently, he was dumb, for not being able to hear the sound of words, he could never imitate or hear them. The lovelinesse of his face, and especially the exceeding life and spiritfulness of his eyes, and the comeliness of his person, and whole composure of his body throughout, were pregnant signes of a well-tempered mind within. And therefore all that knew him lamented much his want of means to cultivate it, and to imbrue it with the notions which it seemed to be capable of in regard to itself, had it not been so crossed by this unhappy accident, which to remedy Physicians and Chirurgians had long imployed their skill; but all in vain. At the last, there was a Priest who undertook the teaching him to understand others when they spoke, and to speak himself that others might understand him. What at the first he was laughed at for, made him after some years be looked upon as if he had wrought a miracle. In a word, after strange patience, constancy and paines, he brought the young Lord to speak as distinctly as any man whosoever; And to understand so perfectly what others spoke that he would not lose a word in a whole daie's conversation.

"They who have a curiosity to see by what steps the master proceeded in teaching him, may satisfie it by a book which he himself hath writ in Spanish upon that subject, to instruct others how to teach deaf and dumb persons to speak. Which when he shall have looked headfully over, and shall have considered what a great distance there is between the simplicity and nakednesse of his first principles, and the strange readinesse and vast extent of speed resulting in process of time out of them; he will forbear pronouncing an impossibility in their pedigree, whiles he wondereth at the numerous effects resulting in bodies out of rarity and density, ingeniously mingled together by an all-knowing Architect, for the production of various qualities among insects, of strange motions in particular bodies, and of admirable operations of life and sense among vegetables and animals. All which are so many several words of the mystical language, which the great Master has taught his otherwise dumb scholars (the creatures) to proclaim his infinite art, wisdome, perfections, and excellency in.

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[a] Treatise of Bodies. Fol. Paris: 1643. Chap. XXVIII. P. 254.

"The Priest who by his book and art occasioned this discourse, I am told is still alive, and in the service of the Prince of Carignan, where he continueth (with some that have need of his paines) the same imployment as he did with the Constable's brother, with whom I have often discoursed, whiles I waited upon the Prince of Wales (now our gracious Soveraign) in Spain. And I doubt not but his Majesty remembereth all I have said of him, and much more: for his Majesty was very curious to observe and inquire into the utmost of it. It is true, one great misbecomingnesse he was apt to fall into whiles he spoke, which was an uncertainty in the tone of his voyce; for not hearing the sound that he made when he spoke, he could not steadily govern the pitch of his voyce; but it would be sometimes higher, sometimes lower; though for the most part, what he delivered together, he ended in the same key as he began it. But when he had once suffered the passage of his voice to close, at the opening them again, chance, or the measure of his earnestnesse to speak or to reply, gave him his tone: which he was not capable of modicating by such an artifice, as is recorded Caius Gracchus used, when passion, in his orations to the people, drove out his voyce with too great a vehemence or shrillnesse.

"He could discern in another, whether he spoke shrill or low: and he could repeat after anybody, any hard word whatsoever. Which the Prince tryed often, not onely in English, but by making some Welchmen that served his Highnesse, speak words of their language. Which he so perfectly ecchoed, that I confess I wondered more at that than at all the rest.. And his Master himself would acknowledge that the rules of his art reached not to produce that effect with any certainty. And therefore concluded, that in him must spring from other rules he had framed unto himself, out of his own attentive observation: which, the advantage that nature had justly given him in the sharpnesse of his other senses, to supply the want of this, endowed him with an ability and sagacity to do so beyond any other man that had his hearing. He expressed it (surely) in a high measure, by his exact imitation of the Welch pronunciation: for that tongue (like the Hebrew) employeth much the gutturall letters: and the motion of that part which formeth them cannot be seen nor judged by the eye, otherwise than by the effect they may happily make by consent in the other parts of the mouth, exposed to view: for the knowledge he had of what they said, sprang from his observing they made; so that he could converse currently in the light though they he talked with whispered never so softly. And I have seen him at the distance of a large chambers breadth, say words after one, that I, standing close by the speaker, could not hear a syllable of. But if he was in the dark, or if one turned his face out of his sight, he was capable of nothing one said."

The early efforts of Spaniards and Italians to ameliorate the condition of the deaf and dumb, and their indifference to their affliction some centuries afterwards, gives some grounds for the idea that the study of vocalisation and the oral instruction of the deaf and dumb was the work of the Moslem.

Ponce attained marvellous success by his method at a time when Moriscoe teachers were to be found in every city in Spain, and less than a hundred years after the Moors were expelled.

Teaching the children of the poor, and educating deaf, dumb, blind, and lame persons, had been carried on in the Caliphates. Ahmed Ibu Mohammed Al-Makkari, in his "History of the Mohammedan Dynasties in Spain," (Book II., Chapter III., p. 140), describes the method of education and the regulations made to ensure to the child of the poorest a sound and liberal education:—

"There were several professorships attached to every mosque, and numerous professors who delivered lectures on various subjects for a fixed salary, which they received; and had it not been so, science could not have flourished as it did, for learned men among them laboured with all their might in the acquisition of knowledge, disregarding every other consideration or occupation from which they might derive emolument."

Nothing escapes their attention. Abú-l-motref taught that disease could be more effectually checked by diet than by medicine, and that when medicine became necessary, simples were far preferable to compound medicaments, and when these latter were required, as few drugs as possible ought to enter into their composition. No wonder that Christian princes chose infidel physicians, and shunned dosing with moss from a dead malefactor's skull, the fæces of dogs, wolves, cats, and others animals mixed into a paste, with about one hundred other ingredients which were apparently selected for their abominable taste or disgusting stink, or hideous origin.

Every wealthy Moslem had a library; the public libraries were of immense size—that of Cordova possessed over 400,000 volumes, a very small percentage of which were theological. And even in Spain, whilst the bitter struggle between the Crescent and the Cross for supremacy was being carried on, Christian priests mingled with the unbaptised pupils in their schools. Gerbert, successively Archbishop of Rheims and Ravenna, and who, as Pope Silvester II., finally occupied the Papal throne, attended the Moslem classes in Cordova, where the Ommiade Caliph, Hakim II., held his splendid court. Of Gerbert it is written that—"For ten years he taught in the School of Rheims the whole range of human science." He drew up the acts of the Council of Rheims in 991, probably the most independent manifesto ever issued by the Gallician Church.

Irrational superstition and ascetic enthusiasm were inimical to learning; no state of society could be more adverse to the intellectual development of mankind than one which admitted no middle line between gross dissoluteness and fanatical mortification.

The monks shunned the study of physical science. Medicine and all cognate inquiries were left to the Jews and Arabs, and students came to their schools in Italy and Spain from every country in Europe.

Is it not a fair inference that the methods of Ponce and Bonet had their origin in the schools of the Moslem?

Of British writers, one of the earliest and most distinguished advocates for the instruction of the deaf and dumb was George Dalgarno, who was born in 1625 at old Aberdeen. His name was rescued from oblivion by Professor Dugald Stewart, who, in his account of the education of the blind, and deaf, and dumb boy, James Mitchell, writes as follows:—

"After having paid the tribute of my sincere respect to the enlightened and benevolent exertions of a celebrated foreigner (Sicard), I feel myself called on to lay hold of the only opportunity that may occur to me of rescuing from oblivion the name of a Scottish writer, whose merits have been strangely overlooked, both by his contemporaries and by his successors. The person I allude to is George Dalgarno, who, more than a hundred and thirty years ago, was led by his own sagacity to adopt, *à priori*, the same general conclusion concerning the education of the dumb, of which the experimental discovery and the happy application have in our times reflected such merited lustre on the name of Sicard. I mentioned Dalgarno formerly in a note annexed to the first volume of the 'Philosophy of the Human Mind' as the author of a very ingenious tract, entitled 'Ars Signorum,' from which it appears indisputably that he was the precursor of Bishop Wilkins in his speculations concerning a real character and a philosophical language; and it now appears to me equally clear, on a further acquaintance with the short fragments which he has left behind him, that if he did not lead the way to the attempt made by Dr. Wallis to teach the dumb to speak, he had conceived views with respect to the means of instructing them far more profound and comprehensive than any we meet with in the works of learned writers prior to the date of Dalgarno's publications. On his claims in these two instances I forbear to enlarge at present; but I cannot deny myself the satisfaction of transcribing a few paragraphs in justification of what I have already stated with respect to the remarkable coincidence between some of his theoretical deductions and the practical results of the French Academician:—

"'I conceive there might be successful addresses made to a dumb child, even in its cradle, when he begins *risu cognoscere matrem*, if the mother or nurse had but as nimble a hand as commonly they have a tongue. For instance, I doubt not but the words hand, foot, dog, cat, hat, &c., written fair and as often presented to the deaf child's eye, pointing from the words to the things, and *vice versâ*, as the blind child hears them spoken, would be known and remembered as soon by the one as by the other; and as I think the eye to be as docile as the ear, so neither see I any reason but the hand might be made as tractable an organ as the tongue, and as soon brought to form, if not fair, at least legible characters, as the tongue to imitate and echo back articulate sounds. . . The difficulties of learning to read on the common plan, are so great, that one may justly wonder how young ones come to get over them. Now, the deaf child, under his mother's tuition, passes securely by all these rocks and quicksands. The distinction of letters, their names, and their powers, their order, the dividing words into syllables, and of them again making words, to which may be added tone and accent—none of these puzzling niceties hinder his progress. It is true after he had passed the discipline of the nursery, and come to learn grammatically, then he must begin to learn to know letters written by their figures, number, and order.'

"The same author elsewhere observes, that 'the soul can exert her powers by the ministry of any of the senses; and therefore, when she is deprived of her principal secretaries, the eye and the ear, then she must be contented with the service of her lackeys and scullions, the other senses; which are no less true and faithful to their mistress than the eye and ear, but not so quick for despatch.'

"I shall only add one other sentence, from which my readers will be enabled, without any comment of mine, to perceive with what sagacity and success this very original thinker had anticipated some of the most refined experimental conclusions of a more enlightened age:—

"'My design is not to give a methodical system of grammatical rules, but only such general directions, whereby an industrious tutor may bring his deaf pupil to the vulgar use and *ὁτι* of a language, that so he may be the more capable of receiving instruction in the *διότί*, from the rules of grammar, when his judgment is ripe for that study; or, more plainly, I intend to bring the way of teaching a deaf man to read and write as near as possible to that of teaching young ones to speak and understand their mother-tongue.' In prosecution of this general idea, he has treated in one very short chapter of 'A Deaf Man's Dictionary,' and in another of 'A Grammar for Deaf Persons,' both of them containing (under the disadvantage of a style uncommonly pedantic and quaint) a variety of precious hints, from which, if I do not deceive myself, useful practical hints might be derived, not only by such as may undertake the instruction of such pupils as Mitchell or Massieu, but by all who have any concern in the tuition of children during the first stage of their education."

That Dalgarno's suggestions with respect to the education of the dumb were not altogether useless to Dr. Wallis will, I think, be readily admitted by those who take the trouble to compare his letter to Mr. Beverley (published eighteen years after Dalgarno's treatise) with his "Tractus de Loquella," published in 1653.

In this letter some valuable remarks are to be found on the method of leading the dumb to the signification of words; and yet the name of Dalgarno is not once mentioned by his correspondent.

Dalgarno, on completing his studies in Aberdeen University, went to Oxford, where for thirty years he taught a grammar school, and dying of a fever in 1687 was buried in St. Mary Magdalen's Church.

In 1661 he published his treatise "Ars Signorum, vulgo Character Universalis et Lingua Philosophica," containing the secret "which by the learned men of former ages had been reckoned among the desiderata of learning." This treatise, which was dedicated to King Charles in the universal language, which reads not unlike Volapük, and must have amused and puzzled the king and his companions in Whitehall, exhibits a classification of ideas, and a series of arbitrary signs or characters adapted to the classification, so as to represent each idea by a specific character, without reference to any language of words.

All those persons who are acquainted with the essay of Bishop Wilkins will see the germ of it in this design of Dalgarno.

He published in 1680 his "Didascalocophus, or the Deaf and Dumbe Man's Tutor; to which is added. a Discourse of the Nature and Number of Double Consonants; both which Tracts being the first (for which the Author knows) that have been published on either of these subjects. By George Dalgarno. Printed at Peatre in Oxford. Anno Dom. 1680."

Of his treatises he writes that his former work, during periods of sickness, "became a fruitful mother of two sisters—Germans: 'Didascalocophus' and 'Discourse of Double Consonants;' which, having layen as twins in the womb for many years, at last two severe fits of sickness did midwive into the world, the latter herein order being senior to the other in the space of full seven years."

The following are some of his directions for the instruction of the deaf and dumb:—

"When your scholar is got over this difficulty of knowing and writing his letters, then imitate the way of the nursery. Let *utile* and *jucundum*, variety and necessity, invite and spur him on; especially if he be young and of a lache temper. You must not be too grammatical in teaching, till you find his capacity will bear it; he must not be dealt with as schoolboys, who are often punished for not learning what is above their capacity. It is enough for him to understand the word or sentence proposed, without parsing every word or syllable; for this is all the use of language that not only children, but even people of age that are illiterate have."

A reprint of Dalgarno's works, edited by Mr. Henry Cockburn and Mr. Thomas Maitland, was published at Edinburgh in 1834 by the Maitland Club. Letters of congratulation came to the

Club from the great majority of European and American literary men; but that of Messrs. Guyot, the directors of the Asylum for the Deaf and Dumb at Groningen, bears such unequivocal testimony to the value of Dalgarno's works that I give some quotations from it. They state, "that though they had enriched the library of the Asylum with all the treatises which had been written on the education of the deaf and dumb, in Spanish, Italian, English, French, German, Danish, and Dutch, they were never more gratified than when, some years before, they had the fortune to meet with a copy of the "Didascalocophus," which they had caused instantly to be translated into their language, and which they consider a first masterpiece in its species." They had themselves contemplated the republication of the book, with their translation.

Dalgarno continued, for seven years after the publication of the "Didascalocophus," to struggle with ill health and straitened means, never having secured either wealth or popular favour. "His reward has been the praise and the respect of the judicious few."

A contemporary of Dalgarno was Dr. John Bulwer, who, although he did not himself instruct the deaf and dumb, undoubtedly pointed out a sure and certain path which their teachers might pursue.

In 1648 he published his "Philocophus, or the Deafe and Dumbe Man's Friend, exhibiting the philosophical verity of that subtile art which may inable one with an observant eie to hear what any man speaks by the moving of his lips. Upon the same ground, with the advantage of an historical exemplification, apparently proving, that a man borne deafe and dumbe may be taught to hear sounds of words with his eie and thence learn to speake with his tongue. By J. B., sirnamed the Chirsopher."

The work, a duodecimo volume, was dedicated to "Sir Edward Gostwicke, bart., of Willington, Bradfordshire, Mr. William Gostwicke his youngest brother, and all other intelligent and ingenious gentlemen who as yet can neither here nor speake."

A few years before 1648 Bulwer published his treatises, "Chironomia, or the Art of Manual Rhetoric," and "Chirologia, or the Natural Language of the Hand." These obtained for him the name of Chirosopher. They formed part of that system of artificial language which he designed to employ in developing his philosophical views, and by which he proposed to lead the deaf to a knowledge of a spoken language. His principles of instruction appear to have been imitative signs, or the language of action;

the labial alphabet, or reading the movements of the lips; and articulation.

He was the first to recommend the institution of "an academy of the mute," and to notice the capacity that deaf persons usually possess of enjoying music through the medium of the teeth—a fact which in the early part of the present century was turned to good account in Germany by Father Robertson, a monk in the Scots' College of Ratisbon.

In considering Bulwer's claims to originality—for he claims that the method he puts forward is wholly his invention—we cannot forget that in the seventeenth century there was much intercourse with Spain, and that the retinue of the Prince of Wales and Charles himself had conversed with Bonet's pupils. Nevertheless, we cannot deny that there was an originality in Bulwer's conceptions which no prior or contemporary author on the subject, in this or any other country, could claim.

Shortly after Bulwer's treatises appeared, Dr. John Wallis, Professor of Geometry in Oxford, laid claim to being the discoverer of a method for enabling the dumb to speak, and, in 1662, introduced, after a year's instruction, his pupil, Damal Whaley, before the Royal Society; and in 1670, some years after Sir Kenelme Digby's death, he published his instructions for teaching the deaf and dumb to speak.

His claims to originality, though loudly and persistently asserted, were never acknowledged. The Rev. William Holder, rector of Bletchington, author of the "Elements of Speech, with an Appendix, concerning persons Deaf and Dumb, 1669," said that he had taught Popham, one of Wallis's pupils, to speak.

Wallis denies that he was indebted to Dalgarno, Bonet, or Bulwer. Dalgarno was personally known to him, and Digby, when in Spain, corresponded with him. Of him, Sir William Hamilton writes:—"He can only vindicate his originality by an ignorance of what had previously been effected."

The successor of Wallis as an instructor of deaf mutes was the gifted Henry Baker, a man of extraordinary talent, who, commencing life in a bookseller's shop, finally, by his own exertions, succeeded in winning from the Royal Society the Copley Medal for his microscopic experiments on the crystallisation of salines. He was born in 1698, and, in 1729, married Sophia, the youngest daughter of Daniel Defoe. In 1740 he was elected a Fellow of the Society of Antiquaries, and the following year a Fellow of the Royal Society.

He died in 1774. Whilst a clerk with a Mr. Foster, an attorney, he undertook the education of Miss Foster, who was a deaf mute. He quickly attained distinction as a teacher, and amassed a considerable fortune by teaching the dumb to speak; but, unfortunately for his reputation, he did not make his method known, and he bound each patient in a bond for £100 not to divulge the secret. He made the acquaintance of Dr. Johnson, who had hopes that Baker would make known his method of instruction, but in which he was disappointed.

Another person who claimed to have invented a method for the oral instruction of the deaf and dumb was George Sibscote, who, in 1670, published his book, "The Deaf and Dumb Man's Discourse." It is little more than a reprint of Bonet's work.

No mention of the instruction of the deaf and dumb would be other than incomplete without honourable mention of Thomas Braidwood, of Edinburgh, who from 1760 unto his death, in 1806, worked, both in Scotland and England, with indefatigable industry and great success in educating the deaf mute.

A reader of Spanish literature, and a correspondent of Wallis on the question of the education of deaf mutes, was Johann Conrad Amman, a physician, who was born at Schaffhausen, in Switzerland, in 1669. In 1687 he graduated at Basle, and commenced the practice of his profession at Amsterdam, to which place he had to flee on account of his religious views.

In 1692 he published his treatise, "Surdus Loquens," which was a reprint of a paper he transmitted to the Royal Society. The book was an immediate success; Haller termed it *vere aureum*. In it Amman describes the process he employs in teaching the mechanism of vocal utterance. He excites the attention of his pupils to the motion of his lips and larynx while he spoke, and then inducing them, by gentle means, to imitate these movements till he brought them to repeat distinctly letters, syllables, and words. He claimed for his method universal success, and, in his hands, it almost justified the claim. Wetstein's edition, which was published in 1709, and was superintended by Amman himself, is considered the best. His death is supposed to have occurred in 1730.

Prior to Amman's time, however, an attempt at oral instruction had been made in Holland. Peter Montans published a treatise on the subject in 1635; and F. M. van Helmont, in 1667, published his "Alphabetum Naturæ," a work principally remarkable for its marvellous stories.

In the beginning of the eighteenth century (1812) Charles Michael de l'Epée, one of the most distinguished of French philanthropists, was born. His work in the instruction of deaf mutes was the beginning of that great work which was so successfully carried on by his successor, Sicard.

Before de l'Epée's time a certain amount of progress had been made in teaching the deaf and dumb; and the will which the deaf mute, Guibal, had made in writing in 1679 proved that to be born deaf and dumb was not necessarily to be born without any intellectual capacity.

Of the early teachers, the best known is Péreire, who employed both oral instruction and dactylogy. He exhibited two pupils, Saboreux and D'Azy, before a committee of the Academy of Sciences. Péreire's pupils attained great proficiency, and were able to answer *vivâ voce*, or by writing, all questions put to them. He kept his method a secret; though he named a price at which he was prepared to impart it, the offer was not accepted, and the only knowledge possessed of his teaching is the account given by his pupil, Saboreux, which has been published by Baron Degarando.

The Abbé Deschamps successfully conducted the education of deaf mutes in Orleans; he devoted his life and fortune to their benefit. In 1779 he published his "Cours Elémentaire d'Education," from which treatise it appears that he adopted the method of Amman.

After Deschamps, in order of time as a teacher, comes M. de l'Epée, the son of the King's architect, who received a canonry in the Cathedral of Troyes from the nephew of Bossuet. "An accidental circumstance led him to devote himself to the service of the deaf and dumb. Business took him one day to a house, where he found only two young women, who were busily engaged in needlework, but paid no attention to his questions. The mother of the young women arriving shortly afterwards explained to him, with tears, that they were deaf and dumb. An ecclesiastic named Vanin had commenced the education of these young persons by means of pictures; but death had removed him, and no other person had offered to instruct the mutes. Believing," says M. de l'Epée, "that these two children would live and die in ignorance of their religion if I did not attempt some means of instructing them, I was touched with compassion, and told the mother that she might send them daily to my house, and that I would do what I might find possible for them." He was encouraged in his selfimposed task by remembering that his tutor had once proved to him that "there is no more natural connection between metaphysical ideas and the articulated sounds that strike the ear than between the same ideas and the written characters that strike the eye, and that his tutor drew this conclusion—that it was as possible to instruct the deaf and dumb by writing, always accompanied by visible signs, as to teach other men by words delivered orally, along with gestures indicative of their signification."

The Abbé de l'Epée obtained the works of Amman and Bonet, and devoted himself to the instruction of the deaf and dumb. Methodical signs and writing were the means he principally employed. To enable him to read Bonet's work he studied Spanish, and, amidst much opposition, he persevered in his work. Of an income of £400 a year, he devoted £300 yearly to the indigent deaf and dumb. "The rich," he said, "only come to my house by tolerance. It is not to them that I devote myself—it is to the poor; but for them I should never have undertaken the education of the deaf and dumb." Of him, an able writer has well said—"He persevered until he converted opposition and contempt into approbation."

Henicke, an instructor at Leipzig, "a man of great self-conceit, irritable, rude, and overbearing," entered into controversy with the Abbé de l'Epée, which, however, in no way reflected credit on himself, or damaged the reputation of the Abbé.

On December the 23rd, 1789, aged 77, Abbé de l'Epée died, and even amidst the horrors of the Revolution, and in excitement of the fierce death-struggle of the people for freedom, the nation found time to mourn one of the most disinterested and noblest of the sons of France.

Koch Ambrose Cucurron Sicard, born at Foussert, near Toulouse, 1742, became the successor of the Abbé de l'Epée as instructor of the deaf and dumb. He had taken holy orders; but he had, at the request of the Archbishop of Bordeaux, undertaken the education of deaf mutes. To fit himself for this duty he visited Paris to study the method of the Abbé de l'Epée. He was most successful, and on the death of the Abbé was, by the public, looked to as the most suitable person for the office—the appointment to which, in April, 1790, was one of the last official acts of Louis XVI.

The Abbé Sicard was, unfortunately for himself, a politician, and would declare his dislike to the new order of things. In time he found himself in L'Abbaye, where he awaited execution; but the Abbé was recognised as an instructor of deaf mutes by one Monnot, a watchmaker, and the Republic not only forgave him but actually made him Principal of a normal school, and ever afterwards he remained undisturbed by the authorities he delighted to abuse in his good work of teaching. Sicard was, perhaps, the most successful of Continental teachers. He greatly improved on de l'Epée's method; wrote several works, the principal of which are "Théorie des Signes" and "Cours d'Instruction d'un Sourd-muet de Naissance." He was a member of most of the learned societies in Europe. A few years before his death, which occurred in 1822, he visited England with some of his favourite pupils, and was everywhere well received.

Seventy years—the threescore years and ten of the Psalmist—have almost passed since Sicard's death, and three-quarters of a century since he exhibited his pupils, Massieu and Clerc, in England, and yet the improvement in the method of instruction of deaf mutes since that time is infinitesimal. Sicard's method is the outcome of the work of Ponce and Bonet, the Spaniards, and of Dalgarno, Bulwer, and Wallis in England. It was Amman's book M. de l'Epée read; but Amman plagiarised Dalgarno and Bonet.

There were German instructors of the deaf and dumb, but the credit of initiating the movement and bringing it to the perfection it attained on the Continent under Sicard, and at home under Braidwood and Watson, was in no sense due to Germans.

ART. X.—*Sanitation in the Centre of Ireland, Ancient and Modern.* By SURGEON P. H. FOX, A.M.S.; F.R.C.S.I.; L.K.Q.P.C.I., &c.

THE Royal Society of Antiquaries of Ireland assembled in Athlone, July 8th, 1890, and visited every place of interest in the town and its vicinity. Excursions were made up and down the Shannon in a steamer, and some ancient castles and ecclesiastical ruins were minutely inspected. The party numbered about 100, and included a great number of lady-tourists, clergymen of every denomination, and members of all the learned professions. The University of Dublin was represented by that distinguished Senior Fellow of Trinity College, Professor Galbraith, and the University Professor of Botany, Dr. E. P. Wright. Artists, novelists, and journalists, were present, but personally I must say that I accompanied the Society more in the light of a sanitarian than as an antiquarian. My objects were to ascertain how the sanitation and sites of ancient habitations differed from those of the present day, and their effects on longevity. One thing is certain—viz., people who lived on the shores of Lough Ree attained great ages, as their tombstones will testify. The causes, I think, must be found in healthy habitations, pure air, and wholesome food and exercise. Let us see:—Athlone contains about 7,000 inhabitants, and it is the healthiest inland town in Ireland. This healthfulness may be attributed to the causes just referred to, but perhaps more directly to the fact that the town is built on hills of drift-gravel, and is well watered by the Shannon. Nearly all the habitations, whether ancient or modern, found on the islands and shores of Lough Ree, are built on similar hills of drift-gravel, and the drinking-water consists of "springs," which are formed by the Shannon water filtering and percolating through this drift-sand. Consequently, typhoid fever, or such diseases as are propagated by impure drinking-water, and damp and foul sites, do not occur on the shores of Lough Ree. Athlone was a fortified town from the earliest ages, and was hemmed in by deep graffs and huge walls and powerful bulwarks, yet its inhabitants always enjoyed the most perfect good health, because, although the space was limited and the streets narrow, the water was pure and the site good.

I do not at present propose to enter into any lengthy description of the ancient habitations which occurred around Lough Ree, or the "Lough of Kings." Suffice it to say that the earliest inhabitants of this country lived in wooden huts, which were erected on high hills—*e.g.*, Tara—or formed "lake dwellings." These huts are said to have a marked resemblance to the present military huts at the Curragh Camp—some, however, were entrenched. Others were constructed of mould and wood combined. Early in the fifth century lime and sand commenced to be used, and soon the "lordly castle" took the place of the "lowly hut." Very little traces of the wooden huts now exist, but the grey "old pillared temples" and ruined castles are to be seen all over the country. From a sanitary point of view they are all remarkable in having the most lovely sites in elevated positions, close as possible to abundance of pure water. The Society visited several of these old castles and ruined churches—*e.g.*, St. John's Castle on the Connaught shore, which belonged to the O'Conors, and Portlick Castle on the Leinster shore, which belonged to the

Dillons. These castles stand on sandy points, which run well into the lough, and command most excellent sanitary and strategetical positions. The island monasteries and temples on Lough Ree, which were endowed in the old days by the O'Kellys, the O'Briens, and the O'Kearney Foxs, were also visited. Some of these were built about 450 A.D., and are remarkable for their great age and the durability of their architecture. Several old men and women, believed to be centenarians, were interviewed. One of these—a man aged 102—lived in the court-yard of St. John's Castle, and was photographed by the Society; several others were shown to me by Dr. Shanley at the Workhouse in Athlone. Consequently, we may conclude that the air and sanitary sites on the shores of Lough Ree are most conducive to longevity.

The high and airy positions on which these Celtic castles, some 1,000 years old, stand, compare very favourably with the low and unhealthy sites on which, too often, modern country houses are built. The explanation will be found in the altered mode of conveyance. Our ancestors loved the open air, and delighted in the oar and the saddle, but when wheeled conveyances were introduced the close carriage was preferred to the open air, hill residences and hilly roads were abandoned, the boat and the lough were forsaken, and every body took to the valleys. These altered conditions have undoubtedly shortened life, because, so far as one can gather from inscriptions on old tombstones, and from accounts given by the representatives of ancient families, the average age is not within 20 years of as much as it was, say 200 years ago. Besides, on inquiring into the history of the centenarians above referred to, I find that they have enjoyed the primitive customs of the original inhabitants. That is to say, they lived in airy houses on hills overlooking the lough, they spent the best part of their lives in the enjoyment of gentle exercise in the open air, and, above all, they drank pure water and ate simple food. And such, in my opinion, are the conditions most favourable to longevity.

PYROSIS.

ALFRED H. CARTER, M.D. (*Practitioner*, May, 1890), considers pyrosis as a neurotic affection of reflex origin, characterised by paroxysmal salivation, and due to peripheral irritation generally proceeding from the stomach, but not infrequently from other parts, especially the pelvic generative organs of the female.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Micro-Organisms, with Special Reference to the Etiology of the Infective Diseases. By Dr. C. Flügge, O. O. Professor and Director of the Hygienic Institute at Göttingen. Translated from the Second and thoroughly Revised Edition of "Fermente and Microparasiten," by W. Watson Cheyne, M.B.; Surgeon to King's College Hospital. London: the New Sydenham Society. 1890. Pp. 826.

This translation is a most important addition to the English literature concerning bacteria, and well deserves a place beside the most important volumes hitherto issued by the New Sydenham Society. The varieties and classes of micro-organisms, their habits and modes of life, the fermentations and diseases which they cause, the means of cultivating or destroying them, and, in short, all the important subjects connected with them, are discussed with a completeness which we do not think is to be found in any other English work.

The first chapters are introductory and historical; Dr. Flügge next describes the various forms of micro-organisms, dividing them for this purpose into four classes—viz., the true or mould fungi; the mycetozoa; the yeast fungi, or blastomycetes; and the fission fungi, or schizomycetes. To these last the largest part of this division of the work is assigned.

The third part of the book treats of the biology of the micro-organisms, their chemical condition, and their nutrient materials. Their vital actions are next described; fermentation, putrefaction, their agency in causing disease. There are chapters on the conditions which affect their death, means of attenuation, and germicides, on their distribution and habitat, and on the mode of spreading of infective disease. The last part deals with the modes of investigating bacteria.

Altogether this work gives a most admirable account of the knowledge which we possessed concerning micro-organisms in the year 1886. The German edition which is here translated was published in that year, and consequently one looks in vain for an account of the important investigations which have been carried on, and the valuable information which has been acquired in the past four years. In such a modern and progressive branch of science as bacteriology this is a very serious loss. Still the work is most valuable, and we can cordially recommend it to all who take an interest in micro-organisms.

To Mr. Watson Cheyne's work, as translator, too high praise cannot be given. We have rarely met with a translation which could be read with as much pleasure, and in which the language and style were as good.

Lectures to Nurses on Antiseptics in Surgery. By E. STANMORE BISHOP, F.R.C.S., Eng.; Hon. Surgeon, Ancoat's Hospital, Manchester. London: Sampson Low, Marston, Searle, and Rivington, Limited, St. Dunstan's House, Fetter-lane, E.C. 1890.

THE author of this booklet undertakes the difficult task of making plain to those who know nothing of anatomy, physiology, or chemistry, the great unsolved problems of Surgery. How wounds are influenced by antiseptics; how putrefactive changes are arrested; and "What is simple aseptic inflammation?" Seven coloured illustrations show the micro-organisms, and assist in the description of inflammatory processes.

This book is the first of a series—"The Nursing Record Series." We hope the series will be stopped.

Nurses cannot understand pathological changes whilst they are ignorant of normal histology; and the effect, so far, of trying to explain the, to them, unexplainable, is to make them opinionated, dogmatic, intolerant of orders, captious, and altogether a very disagreeable class of womankind, whose minds are inflated by the possession of technicalities which they do not understand, and which serve only to give them erroneous opinions of their own importance and of their duties, and makes that obedience—which should be unquestioning, prompt, and perfect in all who act as nurses—particularly distasteful to them. The smattering of superficial information and the scrap-book-like collection of isolated facts have worked much mischief. We have known a nurse declare a patient could not possibly have enteric fever because he was constipated; another trained lady-nurse gave half a sleeping draught, for she thought a dose of opium solution should not exceed 20 minims; another wakened a patient who had been delirious to take his temperature. We could prolong the list indefinitely; but the above examples serve to show how dangerous to the patient is a trained lady-nurse who has been spoiled by the acquisition of names, and names only, of pathological processes and therapeutic remedies.

Nurses run the risk of being spoiled by public favour; but the little training is their greatest injury. Too often the trained nurse considers the general practitioner as quite her inferior in knowledge and experience; and a hard-working member of our noble profession, instead of an aid, finds his nurse a nuisance, and the results of his experience and skill set aside by an empty-headed Miss, who has, forsooth, been trained, and read some Nurses' Manual.

The Workhouse and its Medical Officer. By ALFRED SHEEN, M.D., St. And.; M.R.C.S., Eng.; D.P.H., Camb.; Senior Surgeon, Glamorgan and Monmouthshire Infirmary, Cardiff; Surgeon, Cardiff Workhouse and Hospital. Second Edition. Bristol: John Wright & Co. 1890. Pp. 80.

THIS little work, which has deservedly reached a second edition, will be found useful to others besides the special class of practitioners for whom it is primarily intended. In the appendix, for instance, will be found the Lunacy Acts Amendment Act of 1885, and the three most important sections of the Amendment Act of 1889. Dr. Sheen's method of working in the Cardiff Workhouse, as here detailed, is worthy of study and imitation by poor-law medical officers.

The Middlesex Hospital. Reports of the Medical, Surgical, and Pathological Registrars for the year 1888. London: H. K. Lewis. Pp. 435.

MORE than half of this volume is devoted to the statistics of cancer. Mr. W. Roger Williams, the Surgical Registrar, analyses 744 cases, recorded in the Reports of the seven years 1882-8; and adds "abstracts of 146 cases of cancer and tumour formation under treatment during the year 1888." Mr. Williams' tables and figures have been most carefully elaborated; but he restricts himself, as a Registrar should do, to numerical and pathological facts, leaving deduction to others. We shall notice one point only. We looked to see how the statistics of the Middlesex Hospital bear upon the undecided controversy on the hereditary transmission of malignant disease. In 142 cases in which this point was specially investigated only 19·7 per cent. showed family taint. On the other hand "in one case the patient's maternal grandmother, mother, mother's sister, and the patient's two sisters, all died of cancer of the uterus."

Intercolonial Medical Congress of Australia. Transactions of Second Session, held in Melbourne, Victoria, January, 1889. Published under the direction of the Literary Committee. Melbourne: Stillwell & Co., Printers, 195A Collins'-street. 1889.

THE present bulky volume of over one thousand pages is a pleasing evidence that Australian prosperity is not wholly material. The table of contents is such as any European medical society might be proud of. Every subject of present interest in medicine is brought before the profession by men who are very familiar with what has been done in the past and what are the pressing problems of the future. Indeed, we would like, if space allowed of it, to give some extracts from the paper on Phthisis. Many physicians here still continue to think that any part of Australia is suitable for pulmonary tuberculosis, quite forgetting the immense extent of country that is included in the name Australia.

We are glad to see that psychology and diseases of children—subjects that seldom receive sufficient attention in medical meetings—each occupy a section in the Transactions.

Of course surgery takes the lion's share, and as we read down the titles of the papers the aggressiveness of the modern surgeon is made plain. Every viscus, from the cerebrum to the testis, is threatened with his knife, and he is prepared to remove the gall-bladder, shorten the small intestine, extirpate the thyroid, or puncture the temporal lobe, with as little diffidence as his foregoers ablated a breast or amputated a finger. Fortunately the progress of Preventive Medicine offers a hope of escape from the ever-ready scalpel.

Altogether our Colonial brethren have produced a splendid record, and it is particularly gratifying to us to notice that in the good work Irishmen bore their full share. We would especially draw attention to the valuable papers of Mr. P. N. FitzGerald, who, we are proud to say, was educated in this city.

Hygiene and Public Health. By LOUIS C. PARKES, M.D., D.P.H., Lond. Univ.; Fellow of the Sanitary Institute and Member of the Board of Examiners; Assistant Professor of Hygiene and Public Health at the University College, London; Assistant Examiner in Hygiene, Science and Art Department, South Kensington. London: H. K. Lewis. Second Edition. 1890. Crown 8vo. Pp. 485.

As we have noticed this excellent work at length so recently as last June (see Vol. LXXXIX., No. 222, Third Series, page 530) it is only necessary on the present occasion to draw attention to the fact that a second, and, if possible, an improved edition, has already made its appearance.

The first edition was quite run out within six months of issue—a circumstance which bears eloquent testimony to the public want for a book of the kind, and to the very favourable reception which Dr. Parkes's work has received. Probably owing to the late period at which our review of the first edition appeared, the author has not adopted our suggested amendments in the section on Climatology.

We heartily congratulate Dr. Parkes on his well-deserved scientific and literary success.

A New Theory of Chloroform Syncope; showing how the Anæsthetic ought to be Administered. By ROBERT KIRK, M.D., Edin.; F.F.P., &c., Glasgow; Physician to the Dispensary for Diseases of Women, Glasgow Western Infirmary. Glasgow: John Thomlinson, Stanley Works, Partick. Edinburgh and Glasgow: John Menzies & Co. 1890.

EVERY well-considered and carefully-conducted series of experiments into the cause of death from anæsthetics is a decided gain to the medical profession and the public. But we must draw the line at theories; in actual practice theories have not been an unmixed good.

With anæsthetics, as with all other drugs, the dose and mode of administration must be modified according to the state and condition of the patient. No positive rule can be laid down—in all circumstances the patient must be considered. Theories are too frequently carried out on fixed lines and with hard and fast rules—conditions not always to the benefit of the patient.

Dr. Kirk has advanced a good theory, and supports it by many deductions from frequently-observed conditions that occur during chloroformisations. Nevertheless, we cannot accept the theory, for we have seen death occur under circumstances the very opposite of those which, if Dr. Kirk's theory was correct, would occur. We cannot, however, but thank the author for his monograph, which tells of well-devised experiments to examine into the fatality that occasionally occurs during chloroform anæsthesia.

RECENT WORKS ON MASSAGE.

1. *Massotherapeutics, or Massage as a Mode of Treatment.* By WILLIAM MURRELL, M.D., F.R.C.P., Lecturer on Pharmacology and Therapeutics at the Westminster Hospital; formerly Examiner in Materia Medica to the University of Edinburgh and the Royal College of Physicians of London. Fifth Edition. London: H. K. Lewis. 1890. Crown 8vo. Pp. 264.

2. *Massage and the Original Swedish Movements; their Application to Various Diseases of the Body.* By KURRE W. OSTROM, from the Royal University of Upsala, Sweden; Instructor in Massage and Swedish Movements in the Hospital of the University of Pennsylvania and the Philadelphia Polyclinic and College for Graduates in Medicine; late Instructor in the Philadelphia Lying-in Charity Hospital and School for Nurses, &c. London: H. K. Lewis. 1890. 8vo. Pp. 97.

1. JUST a year ago our pages were enriched by a Special Report on massage from the pen of Dr. Kendal Franks (see Vol. LXXXVIII., No. 213, Third Series. September, 1889, page 241). In that Report the whole subject was discussed at length, and particular attention was directed to the fourth edition of Dr. Murrell's now well-known work on Massotherapeutics. So far, therefore, as that work is concerned our present task is a light one. We need do little more than record the appearance of the fifth edition, for the title of which the author again uses the term "Massotherapeutics." By this he says we are to understand that in his pages massage is

considered from "the scientific aspect" as "a mode of treatment," not "as a means of earning a living, or as a modified form of hotel-keeping." Reading through the Preface one is, in fact, struck by the apologetic tone adopted by the author in vindicating the claims of massage as a means of treating disease—real or imaginary,

At the close of the Preface there is an ungenerous allusion to "many mistakes and misprints which from time to time demon printers have surreptitiously introduced." This does not come well from an author who still permits such misspellings as "Noström" for "Norström," on pages 36 and 48; "Lucas Champonnière" for "Lucas Championnière," on page 228; and who is guilty of writing such phrases as "dry iced champagne" (p. 237), "cocaine one grain suppository" (p. 253), and "died leaving her a million of dollars totally unprovided for" (p. 254). Both on page 256 and in the Index Meibomius is made to write "De Flagrorum usu in re veneria." There is a good deal of "book-making" in Dr. Murrell's "Massotherapeutics," as when he devotes five pages to an account of a visit to a British "Health-Resort" (pp. 28–33).

Justice, however, requires us to say that the book, with all its faults, gives a full and intelligible account of the different manœuvres which constitute scientific massage, and of its therapeutical indications and application.

2. Notwithstanding its author's Swedish name, Kurre W. Ostrom, the second book on Massage on our desk hails from Philadelphia. and is published by the widely-known firm of Mr. H. K. Lewis, of London. It is a matter-of-fact, precise treatise, written in excellent English, clearly printed, and well illustrated.

The work consists of three chief parts. The first gives a clear account of massage, properly so called and defined as "a series of passive manipulations on the body," these manipulations being *effleurage*, or stroking; *frictions*, or friction; *pétrissage*, or kneading; and *tapotement*, or percussion. The second parts describes the Swedish Remedial Gymnastics, or "Movement Treatment" as it is termed in America—the various movements being rotation, pressing and shaking, flexion and extension, separating and closing, bending, raising, pulling, turning, depression, and elevation. The third part explains how massage and the Swedish movements may be applied therapeutically for the treatment of various diseases of the body.

The book ends with some useful general remarks, and a sensible criticism on the massage treatment in America. Altogether we are greatly pleased with this little volume, which is one of the best contributions to the literature of the subject with which we are acquainted.

RECENT WORKS ON DENTAL SURGERY.

1. *Dental Surgery, including Special Anatomy and Pathology.* A Manual for Students and Practitioners. By Henry Sewill, M.R.C.S.; L.D.S. Eng.; Past President of the Odontological Society of Great Britain; formerly Dentist to the West London Hospital. Third Edition. London: Baillière, Tindall, & Cox. 1890. 8vo. Pp. 400.

2. *Dental Surgery for Medical Practitioners and Students of Medicine.* By A. W. Barrett, M.B. (Lond.); M.R.C.S.E.; L.D.S.E.; Dental Surgeon to the London Hospital, &c., &c. Second Edition. With illustrations. London: H. K. Lewis. 1890. 8vo. Pp. 134.

1. The first and second editions of Mr. Sewill's work were published in Messrs. J. and A. Churchill's "Students' Guide Series." In the present edition the author has extended the original design and scope of the work, in the hope that it might adequately fulfil the requirements of a complete Manual of Dental Surgery and Pathology. Shortly after the second edition had issued from the press in 1883, it was, on the whole, favourably reviewed in our pages (see Volume LXXVII., No. 150, Third Series, 1884, page 523). Mr. Sewill evidently read that notice, for in the present issue he has incorporated a short, but well-written and illustrated chapter on "Dislocation and Fracture of the Jaw," while he has also modified his description of the method of using cohesive gold in the treatment of caries (page 214).

Mr. Sewill seems to have devoted no small share of his attention to a thorough study of this last-named morbid process, and especially of its pathology. For aid in his researches he expresses his indebtedness to Mr. Arthur Underwood, Mr. Charters White, and Mr. Pound, of the Bacteriological Laboratory, King's College, London—names which, like the author's, are a guarantee of sound work and reliable information.

We should not omit to mention the admirable way in which

Mr. Sewill's book is illustrated. In addition to the many drawings and woodcuts throughout the book, there are several *facsimile* reproductions of photo-micrographs by Mr. A. Pringle and Mr. Charters White. One of the most beautiful of these faces page 24. It represents a section of the lower jaw of a fœtal kitten magnified 24 diameters, with a temporary tooth and its permanent successor *in situ.*

The impression left upon our mind as we glance through the work is that Mr. Sewill has vastly improved it, and that it is a well-designed and fairly complete Manual of Dental Surgery and Pathology.

2. In this little manual, within a limited space, the author has condensed a large amount of useful information relating to the teeth. Commencing with a description of the two dentitions and the various symptoms usually accompanying them, Mr. Barrett then touches upon some of the more common abnormalities which may affect the dental series—deciduous and permanent—and mentions some of those methods whereby the medical practitioner may assist in remedying them. A comparatively speaking lengthy chapter is devoted to the consideration of "Dental Caries." In this chapter the author goes somewhat fully into his subject, describing, also, the various methods of conservative treatment. The chapter on the "Preparation of the Mouth for Artificial Teeth," we think, hardly deserves a place in a book written for the purpose for which this has been intended. A description of the dental anæsthetising agents which are more commonly used is next given, with their several advantages and disadvantages. We gather from the text that the author gives preference to chloroform as an anæsthetic in dentistry, and not to ether—a decision in which all writers do not agree with him.

The last chapter—perhaps the most readable, certainly that which would be most likely to prove of practical utility to those for whom the book has been written—is upon the "Extraction of Teeth."

Throughout, it would seem to us, Mr. Barrett advocates a too full interference on the part of the medical man in cases which should undoubtedly fall under the province of the specialist. The book is likely to prove of general usefulness only to those practitioners who cannot obtain for their clients the services of a competent dentist. The type, and also the binding, of the book, leave nothing to be desired.

Transactions of the Southern Surgical and Gynæcological Association. Vol. II. Second Session held at Nashville, Tennessee, November 12th, 13th, and 14th, 1889. Published by the Association. 1890.

AMERICAN surgeons have, we think, never received in this country proper acknowledgement for their work. We seem to forget that M'Dowell, of Kentucky, and Sims, of Louisiana, were Americans.

The huge folio volumes that tell the surgical and medical history of the Civil War are held to be more like costly vaults for entombing the reputation of the army surgeons than readable books. Withal they are readable and highly instructive, and tell in plain prose of good surgery—surgery unsurpassed in any records.

In building up their splendid reputation none did better work than the surgeons of the Confederacy, who worked under many and great disadvantages. Their hospitals were overcrowded; their patients were wanting in proper dietary; and all medical stores were lamentably deficient—clothing even was in insufficient quantity.

Producing good surgery under such difficulties commands respect and admiration. And we can well understand the enthusiasm of the younger members of the profession in Nashville as they listened to the eloquent address of their President, Dr. Hunter M'Guire, whose unceasing care and restless vigilance for the men of the "Stonewall" Jackson Corps enabled them to make marches that won for them the name of "foot cavalry," and win victories that have immortalised them in the annals of their country.

Of his professional brethren he says:—

"And now of the Confederate surgeon let me say a word. How can I express in adequate terms my admiration for him. He possessed virtues peculiarly his own. Coming from civil life it was wonderful to see how rapidly he adapted himself to the discipline of the army, and conformed to the requirements of military life. The hardships he endured, and the privations to which he was subjected soon transformed him from a novice to a veteran; and I can say with truth that before the war ended, some of the best military surgeons in the world could be found in the Confederate army. His scanty supply of medicines and hospital stores made him fertile in expedients of every kind. I have seen him search field and forest for plants and flowers whose medicinal virtues he understood and could use. The pliant bark of a tree made for him a good tourniquet; the juice of the green persimmon a good styptic; a knitting needle, with its point sharply bent, a tenaculum; and penknife, in his hand, a scalpel and bistoury. I have seen him break off one prong of a common tablefork, bend the point of the other prong, and with it elevate the bone in depressed fracture of the skull, and save life. Long before he knew the use of the porcelain-tipped probe for finding bullets, I have seen him use a piece of soft pine wood, and bring it out of the wound marked by the leaden ball. . . They were splendid specimens of a noble race—a race whose achievements astonished the world, and wrung from the foe himself a full measure of praise."

Twenty-seven papers were read, and these are made more valuable by the discussions they gave rise to being reported. All the papers are characterised by a thoroughness and mastery of the subject that reminds us of the French writers. As might be expected from men reared in the traditions of Sims and M'Dowell, gynæcology attracts much attention; and there is an excellent "Report of Gynecological Work, with Especial Reference to Methods," by Dr. Maury. "The Improved Cæsarean Section *versus* Craniotomy" is the title of a suggestive and well-considered article by Dr. Haggard. But we cannot enumerate all the good articles other than by writing a copy of the Table of Contents, and space does not allow of this.

We have just one suggestion to make—that is, that gentlemen who were formerly in the Confederate Service should state so after their name on their paper; and we are sure that junior members, both here and in America, would like to hear from them their personal experiences in the Southern hospitals during the war. And we hope that for many, many years the Southern Surgical Association may be able to produce so excellent, pleasing, and instructive a volume of Transactions.

Type, illustrations, and binding, are all deserving of praise, and reflect credit on all concerned in the production of the volume.

A Retrospect of Surgery, January, 1886—*January,* 1890. Prepared by FRANCIS J. SHEPHERD, M.D., C.M.; Surgeon to the Montreal General Hospital; Professor of Anatomy and Lecturer on Operative Surgery, M'Gill University. Montreal: Gazette Printing Company. 1890.

MR. SHEPHERD has produced a very useful and readable volume—one of permanent value as a book of reference. His selections are from American, British, and Continental journals. Each section of the work is prefaced by a good summary of the work done in that department of surgery during the preceding four years. In his quotations, the name of the journal from which the exscript is taken, together with its date, is given. Thus, the reader, who so desires, can obtain the fullest information possible on the subject. An excellent Index adds greatly to the value of the book.

We have only to add that the articles are reprinted from the *Montreal Medical Journal*, one of the most valued of our exchanges—a guarantee in itself of the excellence of the book.

We hope that the author may be induced to continue his reprints; they are, both directly and indirectly, a great benefit to the practical surgeon.

Traité des Maladies du Testicule, et de ses Annexes. Par CH. MONOD, Professeur Agrégé à la Faculté de Médecine de Paris; Chirurgien de L'Hôpital Saint Antoine; Membre de la Société de Chirurgie; et O. TERRILLON, Professeur Agrégé à la Faculté de Médecine de Paris; Chirurgien de la Salpêtrière; Membre de la Société de Chirurgie. Avec 92 figures dans le texte. Paris: G. Masson, Éditeur Libraire de L'Académie de Médecine, 120 Boulevard Saint Germain, en face de l'École de Médecine. 1889.

THE authors of this monograph do not bring forward any original matter, but they have produced a very complete treatise on the subject, in the preparation of which they have laid under tribute all the better known English and Continental writers. The first chapter is devoted to abnormalities of the viscus, and is beautifully illustrated. Wounds of the testicle occupy the second chapter, and the remaining ones are occupied with the diseases to which the organ is liable.

Both illustrations and type are beautiful, and not the least of the book's excellences is a good index.

DEATHS FROM ETHER.

THE *Southern Medical Record*, of Atlanta, Georgia, of February, 1890, reports two deaths from ether anæsthesia—one in Bellevue Hospital, New York, and the other in the city of Atlanta, the latter case was in the care of Dr. W. J. Westmorland, who was operating on the patient for fistula in ano. In each of the cases the administration of the drug was in the hands of experienced etherists, so that the anæsthetic was rightly chargeable with the disastrous results.

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.[*]

By Sir Charles A. Cameron, M.D., M.K.&Q.C.P., D.P.H., Camb. Univ.; Ex-President and Professor of Chemistry and Hygiene, R.C.S.I.; President of the British Public Health Medical Society; Vice-President, Society of Public Analysts; Member of the Army Sanitary Committee, Chief Medical Officer of Health for Dublin; Hon. Member, Societies of Hygiene, France, Belgium, Bordeaux, &c., &c.

ENZYME ACTION IN LOWER ORGANISMS.

Dr. G. E. Cartwright Wood, in a paper read before the Royal Society of Edinburgh, December 16th, 1889, discusses the subject of enzymes, or soluble ferments, at considerable length. The author begins by pointing out that the apparently unlimited power which the soluble ferments possess of decomposing certain kinds of matter, without themselves undergoing decomposition, has caused the confusion of enzyme action with that of truly vital processes. The action of ferments, although demonstrated only as regards alimentary functions, has been alleged as the cause of many of the phenomena of biology. Even when Pasteur proved that the processes of fermentation were invariably correlated with a vital part—namely, the growth and development of cells, yet Traube, Hoppe-Seyler, Liebig, and others, still maintained that these might act indirectly by the formation of soluble ferments.

The analogy between the processes of fermentation and infective processes in disease is so striking that infective diseases have been placed in a class under the term zymotic. This term would imply that the phenomena of fermentations of digestion to a certain extent, and of the infective diseases, are of a common nature. Again, the ferments, once regarded as being almost or wholly inorganic agents, are now universally looked upon as living organisms, though they may not always act directly, but only through the production of secondary soluble ferments. This view is strengthened by the researches of H. Bitter, who in 1887 proved that bacteria produced enzymes separable from the organisms that formed them. Some of these organisms were killed by an exposure to a temperature of 60° Cent., whilst the ferments which they had generated remained unaffected. Two organisms developed in gelatine were in this way destroyed, yet the soluble ferments which they had developed continued to liquefy the gelatine. Sirotinin removed the organisms from a culture fluid, by passing it through a Chamberland's porcelain filter;[a] yet the sterilised liquid still possessed the power of liquefying gelatine. Bruton and Macfadyen have made somewhat similar observations.

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[*] The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

Dr. Wood's investigations have been undertaken with the view of determining the properties of enzymes more minutely than has hitherto been accomplished. For this purpose he selected four micro-organisms, known as the cholera group—namely, Koch's cholera bacillus, Deneke's cheese bacillus, Finkler's cholera nostras bacillus, and Miller's bacillus. These organisms closely resemble each other, and the point principally to be determined was—do their enzymes differ in any important respect? Dr. Wood's process was as follows:—To a tube containing 20 cubic centimetres of sterilised milk, a certain quantity of acetic acid was added, the mixture well shaken, and distributed in equal quantities by means of a sterilised pipette into four test tubes. To each tube 1 cc. of the sterilised products of one of the organisms was added, and the result noted. By making a series of mixtures containing varying quantities of the acetic acid, the effect on the enzyme action was ascertained. The cholera enzyme was found to be most susceptible to the influence of the acid, very small quantities inhibiting its activity. Deneke's bacillus came next, whilst Finkler's and Miller's bacilli continued to act in distinctly acid solutions. It would seem, however, that the two enzymes which these pathological organisms possess are not equally affected by acidity. Gelatine and blood serum cultures made of the four organisms, having been found to exert no diastatic action on starch, a medium containing starch was inoculated with the cholera bacillus, which, after being allowed to grow for some time, was sterilised at 60° C. The amount of sugar present was then ascertained. By means of a pipette 25 cc. of the sterilised culture were introduced into a starch solution and incubated for six days, when the amount of sugar was again determined and found not to have increased—a proof of the absence of ferment action. A repetition of this experiment gave an identical result. In this case it seems probable that the power of converting starch into sugar resides in the protoplasm, it not having as yet assumed the form of an enzyme separable from the organism. Dr. Wood considers that it is not necessary to regard the primary processes of digestion as dependent on soluble ferments. The enzyme function is a fact regarded by Hueppe[a] as a secondarily derived function of the protoplasm. The process of digestion in its simplest form is not dependent on enzymes, but is inherent in the protoplasm itself; but the various enzymes are differentiations of this primitive power of the protoplasm. Thus the cholera organism appears to digest its proteids by means of enzymes, but its action on the carbohydrates resides in its own protoplasm. Even in the alimentary canal ferments alone do not cause digestion, for although starch is therein converted into maltose and dextrin, the latter is unaffected by the further action of the enzymes. As dextrin is not absorbed as such, its further elaboration must take place in the cells, which are wholly albuminous.

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[a] "Sur un filtre donnant de l'eau physiologiquement pure." Comptes rendus. T. 99. P. 247.

The author discusses the problem—Are the products originating from the action of different enzymes the same? It is certain that in many cases the sugars and peptones are different, and it is likely that further investigation will show still greater variety. Peptones show us not merely the breaking down of the complex proteid molecule into simplex and more diffusible ones, which are the more readily absorbed, but also of its "disintegrating into simpler bodies of probably quite a definite composition, which the protoplasm can either convert into catalysable material to be stored up in the organism or built up into its own proper substance." The protoplasm of bacteria has been shown to differ greatly in its action on bodies all but indistinguishable from a chemical point of view, and it may serve as a useful means of differentiating between bodies apparently but not really identical. It is a curious fact that the natural inulins are affected by a microbe which is absolutely without action on the artificially-formed inulins.

The author, after a long consideration on various points connected with bacteria and enzymes, proceeds to consider the greater sensitiveness of organisms which grow out of contact with the air.

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[a] Die Methoden der Bakterien Forschung, 1888. Abschnitte ueber Biologie. Die Hygienische Beurtheilung des Trinkwasser, 1887.

and their relation to disease. In cholera, typhoid fever, and yellow fever, in which intestinal symptoms preponderate, the virus of the disease is propagated through the medium of the evacuations from the bowels; yet these, when fresh, do not seem to be, as a rule, infective. The organisms in the evacuations seem to require "ripening," as Pettenkofer terms it. In the body the microbes are distinctly anaerobian. According to Hueppe and Wood they are very sensitive to acids, and therefore, if swallowed, would be, as a rule, destroyed by the free acids of the stomach. The microbes, which grow in contact with the air are, however, not so susceptible to the influence of acids; hence the cholera or typhoid fever organisms developed in the presence of air (either the open atmosphere or the air which is dissolved in water) might easily pass through the stomach without being destroyed. If this theory be true, then, the addition of a little hydrochloric acid to a typhoid dejection would be the best disinfectant.

VITAL AND NATAL STATISTICS IN NORWAY.

The report on the vital statistics of Norway for 1887 was published in Christiania late in 1889. In the former year the population of the kingdom numbered 1,967,000. The deaths were 31,675, or in the ratio of 16·1 per 1,000 persons living. The still-births were not included in the above. The births numbered 60,908, or nearly double the number of deaths, and were in the ratio of 30·9 per 1,000 persons living. The still-births amounted to 1,720. The causes of death and ages of the deceased are only properly recorded in 17,489 cases—8,790 males and 8,699 females. Deaths according to age:—

Under one year	2,330
One to 19 years	5,166
20 to 39 "	2,852
40 to 50 "	2,628
60 years and upwards	4,513

The following were the principal causes of death:—

Pulmonary phthisis	2,694
Diphtheria and croup	1,801
Pneumonia	1,294
Scarlet fever	623
Puerperal fever	185
Typhoid fever	172
Meningitis	704
Measles	212

46,546 persons were vaccinated during the year.

There is a great emigration from Norway, yet the population of the country steadily increases. In France, with a population of nearly 40 millions, the yearly births only exceed the deaths by about 10,000; whilst in Norway, with a population only one-twentieth of that of France, the births exceed the deaths by 30,000.

A SEPTIC FORM OF LUNG DISEASE.

Dr. William Carr Glasgow describes, in the *American Journal of Medical Sciences* for March, 1890, an unusual form of lung disease which has for the past three years existed in the city of St. Louis and many parts of the Valley of the Mississippi. In some cases it bore a resemblance to croupous pneumonia, although dissimilar in some of the symptoms and physical signs: in other instances its analogies pointed to broncho-pneumonia; whilst in still others it might be mistaken for bronchitis.

In 1887 the very large mortality of cases which Dr. Glasgow had regarded as croupous pneumonia led him to make a special study of the cases. He had under observation from first to last 194 cases, and he made *post mortem* examinations in 29 fatal cases of the disease. In the earlier investigations, when the clinical signs were still imperfectly studied, 12 of the *post mortem* observations showed the ordinary pathological changes peculiar to pneumonia, lobular or croupous, or to phthisis, whilst 17 of them gave evidence of an unusual form of disease. In these last cases the pathological changes closely resembled each other, the variation being such as might be accounted for by varying intensity of the disease. The microscopic examination showed a great difference as compared with the lesions noticed in pneumonia. In all cases the greater portion of the lungs was infiltrated with a morbid material, and portions of the lungs were consolidated. In the least infiltrated parts the colour was black-brown, in other parts steel-grayish, or light to dark brown. There was but little crepitus. On pressure the lung gave a resistance like that of beef. Some portions sank in water, others floated. The most frequent site of the consolidation was the posterior part of the left upper lobe. The extent of the consolidation sometimes was no greater than a walnut; sometimes it involved the greater part of a lobe. In all cases the liver was softened and enlarged, the heart and spleen were often softened, the kidneys were usually congested—many being in the condition of parenchymatous nephritis. The venous system was engorged. In three cases a purulent effusion was found in the pleura. Under the microscope the alveolar walls were seen to be infiltrated with leucocytes, the alveoli themselves remaining free. The general pathological state of the lungs corresponds to that in broncho-pneumonia. Clinically the disease is divisible into two types—the parenchymatous and bronchial. In the former the areas of consolidation are rapidly and extensively developed; in the latter consolidation is either limited or absent, and the disease hardly passes what may be termed the first or second degrees. The bronchial form is sometimes of a trivial nature. It is variable and inconstant in its symptoms, but still certain physical signs may be relied upon in its diagnosis. It usually commences with a severe chill, which is followed by fever, which may not last more than 12 to 24 hours, violent headache, pains in the back and limbs, stiffness of the joints, tenderness of the muscles, drowsiness, low spirits, headache—extending from forehead to occiput—are some of the symptoms. There is generally a cough, usually violently paroxysmal, and discharges of a clear, viscous fluid. Pulmonary hæmorrhage often sets in early. One of the characteristic physical signs is a lengthened, sharp, and high-pitch respiration, followed immediately by a prolonged low pitch. Percussion gives a wooden or deadened sound, in which the pulmonary resonance is still recognisable, but the sense of resistance is greatly increased. The following shows the difference between the physical signs as compared with those of bronchitis:—

Bronchitis.	*Bronchial Type.*
Percussion normal.	Percussion deadened; increased resistance, occasionally tympanitic.
Vocal fremitus and pectoral fremitus normal.	Vocal and pectoral fremitus increased.
The inspiration may be harsh, often feeble, but with no change of expiration.	Inspiration harsh and high-pitched, with prolonged expiration of lower pitch.
Sonorous and sibilant râles heard on both inspiration and expiration.	Râles largely inspiratory.
Constancy of abnormal sounds during attack.	Sudden and frequent variations of the abnormal sounds.

In the following the parenchymatous form of the disease is contrasted with croupous pneumonia:—

Croupous Pneumonia.	*The Parenchymatous Type.*
The chill not repeated.	The chill repeated, with occasional hot and cold flushes.
Fever of a regular type, terminating most frequently by crisis.	Fever irregular, terminating by lysis.
Sharp, lancinating pain about the nipple, disappearing after a few days.	No pain in the commencement, but later through the lungs, and especially over the lower lobes.
Cough in early stage, constant, painful, and suppressed.	No cough at first; later on, cough and expectoration.
Face distressed in early stage of the disease, with red spots on cheeks, face becoming cyanotic and livid as the disease progresses.	Face has a calm, restful look, usually somewhat pale, with rather a dirty white colour.
Pulse hard, rapid, small, becoming very much accelerated towards the end.	The pulse full, compressible, rarely over 120, in some cases very slow.
Respiration in earlier stages quickened, suppressed, and shallow; in later stages deep, laboured, and heaving.	Respiration not visibly accelerated. Ratio between pulse, respiration and temperature irregular. In the last stage respiration often quiet and slow.
On percussion a dulness, usually following the line of the lobes, most frequently the lower lobes. Respiratory sounds mostly normal over remaining parts of lung.	On percussion a flatness in irregular areas, affecting most frequently the middle and upper lobes; deadened percussion sound over other parts of lung, with increased vocal and pectoral fremitus.
On auscultation the crepitant râle heard in early stage; a râle redux in later stages.	The crepitant râle absent; the râle redux not recognisable.
Bronchial breathing, gradually becoming broncho-vesicular and vesicular as resolution takes place.	Respiration is bronchial over the dull area, and over the remaining portion of the lung a harsh, high-pitched inspiration, with a prolonged expiration of lower pitch, on resolution changing rapidly to the normal respiratory murmur.
Sputa small in quantity, always viscid, almost always rusty colored.	Sputa may be profuse, a clear, viscid fluid often mixed with blood—becoming later purulent.

Death agony prolonged, with laboured breathing and a general condition of cyanosis.	Death sudden, with a few gasping respirations; peaceful.
A sero-fibrinous or fibrinous pleurisy occasionally found.	Purulent effusion in pleura, pericardium, and other cavities.

The contagious nature of the disease has not been established; but so far as Dr. Glasgow's observation goes, it is probably a zymotic malady. It seems to have spread through the wards of more than one hospital. That it is a septic disease is beyond question, and no doubt in due time the bacteriologist will demonstrate its peculiar microzyme.

POISONOUS MUSSELS.

There are certain kinds of fish—for example, mackerel—which seem, more than other kinds, to assume, occasionally, poisonous qualities. Shellfish, too, are known to cause disease under circumstances generally very obscure. In the autumn of 1889 it was a general opinion amongst the citizens of Dublin and Belfast that the typhoid fever then present was the result of the eating of oysters. Many persons who suffered from the disease gave a circumstantial account, tracing the attack to oysters. The oyster trade in Dublin was nearly annihilated, and particularly the oysters on the well-known Clontarf beds, County of Dublin, ceased to be in demand. Mussels appear to be amongst shellfish peculiarly liable to acquire toxic properties.

There is a rather extensive literature on the subject of poisonous mussels and other shellfish. The earliest published notice of poisonous mussels is probably that given by Dr. R. A. Behrens in a tract published in Hanover in 1735. In 1742 P. H. G. Moehring, in a pamphlet published at Bremen, gave an account of a severe eruption produced by eating mussels. The memoirs of the Imperial and Royal Academy of Sciences, Brussels, for 1774, contain a paper on Poisonous Mussels by J. B. Beunie. Two deaths recorded in the *Medical Repository*, London, 1815, are attributed by Dr. G. M. Bullock to the use of poisonous mussels. They are believed also to have caused the poisoning of thirty persons at Leith in 1837.

A paper by Dr. Combe on the "Poisonous Effects of the Mussel" appears in the *Edinburgh Medical and Surgical Journal* for 1828; and a paper on the same subject by Dr. Labbey in the *Annales de*

Chimie Médicale for 1837. Bouchardat describes cases of mussel poisoning in the *Annales d'Hygiène* for 1837; as does also Chevallier in the *Journal de Chimie Médicale*, 1837; and so do the same author and Duchesne in the *Annales d'Hygiène* for 1851. In a treatise on poisonous fish and shellfish by H. F. Authenrieth, published in 1833 at Tübingen, the facts that mussels occasionally assume toxic properties is pointed out. Cases are recorded by Dr. J. Thompson in the *London Medical Quarterly Review* for 1845, by A. S. Taylor in Guy's Hospital Reports for 1850, and in the same Reports for 1874 by Dr. T. Stevenson. Several cases are recorded by Desmartis in the Montpellier *Revue de Therapeutique* for 1854, by C. Coppee in the *Bulletin* of the Ghent Medical Society for 1857, and by T. Patterson in the *Lancet* for 1873. In the last-mentioned case four schoolboys were poisoned by eating mussels picked up on the shore near Plymouth; three died—one within an hour after eating the mussels. Von Deurs records a fatal case which occurred in 1846 at Copenhagen (*Otto's Archives*); and Bruun, of the same city, in the *Copenhagen Hospital News* for 1879, attributes cases of spinal paralysis to the use of poisonous mussels. In 1870 Dr. L. Balbaud published, in Paris, a treatise on "Poisonous Mussels and other Shellfish."

In 1885 a large number of persons were poisoned at Wilhelmshaven by eating mussels which had been gathered from the dock yard. The circumstances connected with this case have been treated of by Max Wolff, Salkowsky, Brieger, and Virchow (*Berliner klinische Wochenschrift*, *Organ für practische Aerzte*, Nos. 48 and 50, 1885; *Deutsche medicinische Wochenschrift*, Berlin, No. 53, 1885). It was found that the mussels in the stagnant water of the harbour were poisonous, but that they lost their toxic properties on being transplanted to pure sea-water. Conversely, mussels from the open sea became poisonous when transferred to the stagnant water in the dock. Brieger, operating upon large quantities of the poisonous mollusks, succeeded in obtaining from them a leucomaïn occurring in octahedral crystals, which he believes to be the toxic principle of poisonous mussels. He found that its formula is as follows:—

$$C_6H_{15}NO_2.$$

Having a view to its origin, he has named this alkaloid *mytilotoxin*. It acts like curare, paralysing the motor nerves, and causing death by the accumulation of carbonic acid in the blood. Brieger has detected some other leucomaïns in poisonous mussels, but they are either innocuous or but slightly toxic. Salkowsky states that the toxicity of mytilotoxin is destroyed by distillation with sodium carbonate.

On June 30th, 1890, Mrs. O'Connor, her five young children, and her maid-servant, residing at Seapoint, County of Dublin, partook of a meal of stewed mussels. In about twenty minutes after the ingestion of the mussels some of the children stated that they felt a prickly ("pins and needles") pain in their hands. Graver symptoms rapidly supervened, and in less than an hour one of the children died, the mother and three other children succumbing two hours after eating the mussels. The chief symptoms were:—Vomiting, dyspnœa, swelling of the face, want of co-ordination in movement, spasms—principally in the arms. The patients appear to have died asphyxiated, their faces being intensely livid. One of the children and the maid—the latter had eaten but few of the mussels—recovered. Medical assistance came rather late, and was not of much use.

The mussels had been procured from a small sheet of water to which the sea had access, but which received fresh water and some sewage. Examinations of the water at low and high tides showed that its saltness was twice as great when the tide was in. The land drainage would necessarily, from local conditions, be impure. It was deemed necessary, for judicial purposes, that the cooked mussels and the matters vomited by the patients should be examined for ordinary poisons. This was done, with negative results. The uncooked mussels compared with mussels of the same size from the open sea appeared to have much larger livers, and their shells were very brittle. An attempt to extract an alkaloid was made. The generic tests applied clearly proved the existence of a leucomaïn, which, indeed, was obtained in crystals, visible under the microscope, and corresponding to those described by Brieger as existing in the poisonous mussels which he examined. The quantity of material available did not, however, yield a sufficient quantity of the leucomaïn for a thorough examination. I have procured a supply of mussels from the pond in which the mussels were found, and hope to be able to extract from them a substantial quantity of the leucomaïn, which will probably be found identical with Brieger's mytilotoxin ($C_6H_5NO_2$). The mussels which I have obtained were mixed with mud possessing a rather offensive odour. The Seapoint case is another instance of poisonous mussels being procured from foul or stagnant water. In this case the opinion of M. Dutertre, that the liver of poisonous mussels is the seat of disease and the generator of the poisonous leucomaïn, seems confirmed; but I cannot agree with the French observer, that the disease is never the result of the poisonous nature of the food of the mussel. I have read all, or nearly all, the cases of mussel poisoning on record, and I gather from such details as are given with respect to the places in which the mussels were found that they were in contact with sewage or stagnant water.

PLUMBISM.

Dr. John Brown has published in pamphlet form his thesis on Plumbism presented for the Doctorate in Medicine in Victoria University, Manchester. It is entitled "Clinical and Chemical Observations on Plumbism due to lead-polluted water."

During the last few years several outbreaks of disease attributed to the use of water impregnated with lead have occurred in Sheffield and many other towns in the North of England, particularly in Yorkshire and Lancashire. The author, living in one of these towns. had opportunities of observing the cases of saturnine disease which occurred in them, but he extended his observations to the neighbouring towns, and with such assiduity that he took notes of 400 out of 500 cases which he saw.

Dr. Brown considers that no disease is more insiduous, ubiquitous, or manifold than Plumbism. It has been mistaken for rheumatism, gout, indigestion, cephalalgia, epilepsy, meningitis, cerebro-spinal meningitis, &c. It has simulated other diseases so closely as to elude detection on the part of skilful and painstaking physicians.

In 55 cases the waters believed to be the cause of disease were quantitatively analysed. The lead present varied in quantity from $\frac{1}{10}$ to $2\frac{1}{3}$ grains, on the average it was 0·66 or one-third of a grain per gallon. The following table shows the ages of the patients:—

Under 5 years	5
5 years and under 10	23
10 „ „ 15	28
15 „ „ 25	92
25 „ „ 50	201
50 „ and upwards	55
	404

The author concludes that these figures show the extremes of life are least predisposed to Plumbism. Of the 55 patients under 15 years of age only two were really serious.

The figures seem to prove a comparative immunity in the young, but in manufacturing towns there would not be many more than 55 persons over 50 years for every 404 persons.

There were 251 females affected as against 153 males, which shows greater susceptibility to lead-poisoning on the part of females. In 24 cases of saturnine epilepsy 17 were females. The majority of the cases occurred in the months of February, March and April. Persons who are feeble, nervous, or convalescent from recent illness are the more readily affected—a fact applicable to many other diseases. Drunkards, of course, were easily affected, and their recovery was slow. About 70 per cent. of the cases occurred amongst the poor and lower classes of mill-workers who were placed under unsanitary conditions.

Filtration of the water proved most valuable, that process largely eliminating the lead.

As to the symptoms, colic was one of the commonest and earliest; it was observed in 206, or half of the total number of the cases. Nausea, vomiting, anorexia, foul breath, and indigestion, are early symptoms. In 148 cases anæmia and cachexia were marked. Headache was noted in 197 instances, in 175 of which it was frontal.

Blue line on the gums was observed in 339 cases. In 36 instances there were blue patches on the cheeks and lips. The blue colour appears to be due to the sulphur of the sulphocyanide of potassium of the saliva acting on the lead and forming the black sulphide of lead.

Patellar tendon reflex was tested in 196 cases with the following results:—

Absent in	71	cases
Present in	79	„
Absent on one side, the other normal	5	„
Absent on one side, feeble on the other	7	„
Absent on the one side, excessive on the other	1	„
Feeble	15	„
Excessive	15	„

Abnormality of the patellar tendon reflex is an early sign, very useful in diagnosis and prognosis.

The gastric secretion is probably reduced in quantity, as are also the secretions of the intestines, causing constipation. In nearly every case the perspiration is lessened, diaphoresis being difficult to produce.

According to Dr. Oliver there is a decrease of urea in the urine in Plumbism. Dr. Brown confirms this opinion. Albuminuria occurs in many cases, and is sometimes the forerunner of saturnine nephritis.

Anæmia occurred in 148 cases; epilepsy in 24 (23 of them being of the *haut mal* variety.

As to mental diseases there were cases of homicidal and suicidal mania, hallucinations, melancholia and general paralysis.

Dr. Brown considers that the toxic effects of lead may in part be due to the lead combining with the albuminates of the protoplasm of the nerve cells, producing on them an inhibitory effect, and lessening their functional activity.

Water may be separated from any lead it contains by passing it through layers of limestone. If it contains free acid, as in the case of the Sheffield pipe water, the addition of carbonate of sodium to the water would, by neutralising the acid, prevent the solution of the lead. Soft lead cisterns and pipes should, in the case of soft waters be avoided. Cast iron, earthenware, tin, and tin-lined lead pipes have all been recommended in place of lead pipes. In Dublin an alloy composed of 96½ parts of lead and 3½ parts of tin is used at my suggestion for water-pipes, and it resists the action of the soft water with which Dublin is supplied.

DETECTION OF LEAD IN POTABLE WATER.

The presence of lead in water is by no means an infrequent occurrence. The usual test is sulphuretted hydrogen gas, which produces in the water a dark discoloration, more or less marked according to the quantity of lead dissolved. Water containing copper and tin give, however, a dark colour on being treated with sulphuretted hydrogen—though these metals are rarely present. Iron, too—not infrequently present—gives a greeny dark colour. Mr. Sidney Harvey, F.C.S., in the *Analyst* for April, 1890, gives the following simple method of ascertaining the presence of lead:—Half a litre of the water to be tested (¼ litre will do, but not so well) is placed in a conical precipitating glass (Phillips), about two grains of crystallised bichromate of potassium added, and the salt dissolved by agitation. Another vessel containing water free from lead is treated similarly. Both waters must be clear and free from acid. Water containing the one-fiftieth part of a grain of lead thus treated, within 15 minutes, will become sensibly turbid, and the pure water beside it will make a strong contrast by its clearness. The water need not be concentrated, and the salt must be added in the form of crystals. After standing for about 12 hours the water will become clear, and on the bottom of the vessel will be found the precipitated chromate of lead, the clear liquid having first been poured off.

Some years ago we found that a very minute trace of lead in water could be detected by means of iodate of potassium, iodate of lead being an extremely insoluble salt.

DIPHTHERIA.

A very full monograph on diphtheria has recently been published by Dr. J. Renou, of Saumur. It comprises a goodly volume of 301 pages, and has been brought out by M. Octave Doin, Place de l'Odéon, Paris. Although the work is entitled "La Diphtérie, son Traitment Antiseptique," it is in reality a full account of diphtheria—the theories as to its causation, the nature of its *materies morbi*, its symptomatology, the lesions which it causes, its diagnosis, its relation to croup, its treatment, and its prophylaxis.

Various opinions have been advanced as to the intimate nature of diphtheria. Some writers regard it as a general affection, which, though the throat may be the part of the body severely affected, yet is as general a malady as scarlet fever, which also produces severe lesions of the throat. Bretonneau and Trousseau compare it to malignant pustule, which, first a local disease, ultimately becomes a general one. Dr. Renou adopts the views of Bretonneau and Trousseau, and regards diphtheria as being at first a local disease. There are various forms of the disease—some very malignant, others mild. Clinically it is a point of great importance whether the disease, first becoming general, manifests itself by the sore throat which it causes, or that the sore throat, being first caused, produces by secondary infection a general disease. If the former be the true state of things it is evident that local remedies will have no general effect upon the disease, though they may palliate local symptoms; on the other hand, if the sore throat be the direct result of the primary infection, the prompt local treatment may prevent the disease from becoming general. The prompt and complete destruction of the false membrane may arrest the secondary infection. Dr. Renou states that it is not always in the throat that the diphtheritic seed is sown in the first place. It is generally in the throat that the disease first appears, because the throat is the common passage to the digestive and respiratory organs, and is therefore the most exposed to the germs coming from the atmosphere; but the germs may lay hold upon other parts. If the mucous membrane of the mouth, the larynx, the bronchus, even of the stomach, be inflamed, then upon the inflamed spaces the germs will plant and develop themselves. When a bronchitic diphtheria is established, then the sore throat is not a manifestation of the infection, but merely the sign of its movement.

The author dwells with great force on the necessity of promptly destroying by cauterisation and ablutions the false membranes, which treatment, he claims, will be the most likely to arrest the progress of the disease. Nor is it alone necessary to deal summarily with the sore throat, the nasal fossa, the bronchi, the mouth—in short, the whole of the mucous membrane adjacent to the throat must be antiseptically treated. Even the skin of the lips or other parts, if stripped, must be treated as if likely to contain the diphtheritic germs.

In all infective diseases the morbid process is identical—the infection is intense, strong, or feeble. This is not due to the attenuation of the infection, but to the resistance—more or less energetic—to which it is opposed by the organism on which it acts. The diphtheritic poison may, in extreme cases, kill its victims in 24 or 48 hours.

The searches for the microbe of diphtheria carried out by Tigre, Hallier, Jaffé, Letzerich, Köhn, Zahn, Talamon, and Quinquaud, have yielded discordant results. Klebs found a characteristic micrococcus in diphtheria of the pharynx, and rods of micrococci, characteristic of the disease, in the larynx. He found the microbe in the blood, the kidneys, and the nervous system. Löffler, assistant to Koch, has recognised and cultivated the micrococci and their rods. Chains of the micrococci cultivated in the pure state have been inoculated without success; whereupon, Löffler concludes that they are not the real cause of diphtheria. The rods cultivated in gelatinised and peptonised serum produced very large, opaque, white spots. The rods are rectilineal, and slightly curved inwards, and they are longer and somewhat thicker than the bacillus of tuberculosis. Their virulence after seven weeks continues intact, but it is destroyed at a temperature of 60° C. Löffler cultivates the microbe at 37° C. Guinea pigs, rabbits, pigeons, and fowls inoculated with the diphtheritic culture on exposed or ulcerated mucous surfaces sickened and died; at the point of inoculation false membranes, œdema, and hæmorrhage were developed. Notwithstanding these interesting results, Löffler concludes that the strict proof of the pathological *role* of the microbe in rods is wanting; for he has met in the mouths of healthy infants rods identical in form and physiological properties. The researches of Löffler are not the most recent with respect to the microbe of diphtheria, as will be seen further on.

Although the isolation of the contagium of diphtheria is not as yet a certainty, there can be no question that such a contagium exists, and that the disease is both infectious and contagious—it is propagated, not only by direct contact (*cum*+*tangere*), but from the sick to the sound through a space which, according to Dr. Lancry, is very limited. Dr. Renou considers that the diphtheria microbe is developed in the soil, and is carried therefrom into the atmosphere, from which it is deposited on the surface of things—clothes, furniture, the human body, &c. Atterbner, of Leipzig, states that the disease is most likely to appear in newly-built houses. The incubation period of the virus is very variable, lasting from 2 to 28 days.

After a long disquisition on the nature of diphtheria, Dr. Renou concludes by defining it to be a disease primarily infective, specific, general, capable of localisation upon points the most diverse, adopting anatomical forms according to the regions it appears in, producing numerous visceral lesions, and, above all, characterised by the sore throat false membrane.

An extensive epidemic of diphtheria at Saumur is described by Dr. Renou, his experience of which proved that the virus of the disease did not diffuse itself widely. The treatment adopted consisted largely of antiseptic applications to the affected parts; for this purpose the phenols were used. The internal remedies chiefly consisted of iron, quinine, and tartrate of potassium and iron, chlorate of potassium; good wine and Cognac brandy was freely used as a stimulant. In many cases tracheotomy was performed, and with much success.

France seems to be peculiarly liable to diphtheria, a fact attributed by Dr. Renou to social conditions, which place France in a position inferior to that of Holland, Belgium, and Germany. His directions as to the prophylaxis of the disease are such as in general apply to most infective maladies. He recommends that the vomited or expectorated matters should be promptly disinfected by a solution of sulphate of zinc, or sulphate of copper, containing 50 grams of the salt per litre. The infected linen, &c., should be treated similarly, and subsequently boiled in water for at least an hour. The vessels used by the patient should be plunged into boiling water. On the removal of the patient, the sick chamber should be disinfected by sulphurous acid, produced by burning 20 grams of sulphur per cubic metre of space in the chamber. This process should go on for 24 hours.

Dr. Renou's admirable work is one which should be found in the library of every epidemiologist; and it would be desirable that each of the other serious infective diseases should be made the subject of a separate treatise, such as that devoted to diphtheria.

C. H. H. Spronck (in No. 260, Vol. 109, of the *Comptes Rendus*) gives an account of bacteriological investigation, the results of which seem to him to confirm Klebs' discovery of the bacillus of diphtheria. In the village of Horn an epidemic of diphtheria occurred in 1889. From the false membranes in the throats of the living patients micro-organisms were obtained which corresponded exactly to those described by Klebs. They were cultivated and the cultures were found to possess toxic properties producing croupous membranes when applied to excoriated surfaces. Albuminuria is a common symptom in diphtheria, and the cultures caused albumen to appear in the urine of animals poisoned by them.

Roux and Yersin state (*Annales de l'Institute Pasteur*, No. 12, 1888) that they have identified a microbe in connection with diphtheria, and have inoculated guinea pigs with it. The results confirm Klebs' discovery.

On May 22nd, 1890, Dr. E. Klein, F.R.S. of London, read a paper before the Royal Society. He states that there are in diphtheria membranes two distinct kinds of bacilli very similar in form and in mode of growth in both serum and Agar-Agar. They differ however in the following manner:—No. 1 is not always present in diphtheritic membranes; it does not grow on solid gelatine at 19·2° C., and has no pathogenic action on animals. No. 2 species (Klebs' and Löffler's) is always present in diphtheritic membranes, acts virulently on animals and grows on gelatine at 19·2° C. This bacillus though always present in the false membranes is not found in the blood or in the diseased viscera of man. In the case of rabbits inoculated with its culture, a similar state of things holds good.

ALLEGED DEATH FROM THE APPLICATION OF AN ARSENICAL PLASTER.

C. F., a woman of the peasant class, aged fifty-three, residing in the county of Wexford, was affected with cancer of the right breast. Dr. Shee, who examined her, recommended an operation for the removal of the cancer, but the patient declined to submit to it. On March 31st, 1890, she drove on a car a distance of 30 miles to be treated by a Mrs. J. W., who enjoys a great reputation as a cancer curer. Mrs. W. placed a plaster upon the affected part, and Mrs. F. returned home. It appears that the double journey of 60 miles occupied nearly 18 hours, and the patient reached home in a highly fatigued condition. On her way home she complained of sickness in the stomach, and she vomited once or twice. She remained ill, and had severe retching, and much diarrhœa (the discharge was greenish) until her death, which occurred on April 8th, at midnight. Dr. Shee, who, with the assistance of Dr. De Renzy, made the *post-mortem*, found that the part of the breast in contact with the plaster was ulcerated superficially. Dr. Shee had noticed that previous to the application of the plaster the skin was unbroken.

The stomach, portions of the liver, kidneys, and small intestines, and the right breast of the deceased, and also the plaster which had been placed on her breast, were delivered to me for analysis. The plaster was found to contain a large amount of arsenious acid. No arsenic was detected in the viscera, but the tissues of the breast contained it in decided quantity.

As a result of the inquest held on the remains of Mrs. F., Mrs. W. was committed for trial, the coroner's jury having found the following remarkable verdict:—"We find that the said C. F. died at Saltmills, Parish of Tintern, of poisoning by arsenious acid, commonly called white arsenic, on the 8th day of April, 1890; and that said poison was absorbed from a plaster placed upon the right breast of said C. F., deceased, at Kintealy, on the 31st March, by Mrs. J. W., whom the said C. F. did feloniously kill and slay against the peace of our Lady the Queen, her crown and dignity. We desire to add that to our certain knowledge Mrs. J. W. has conferred much benefit by her plaster on many persons resident in and near the locality."

Mrs. W. was tried and acquitted at the Wexford Assizes on July 17th. It was stated that the deceased had been for a long time delicate, and that she had on two occasions been ill in her stomach. Her counsel suggested that the gastro-enteritis, which the symptoms of the case and the *post-mortem* examination had demonstrated, might have been the result of the fatigue and cold caused by her long journey. For the prosecution, the medical evidence upheld the theory that the deceased's death was the result of arsenical poisoning.

In 1883, the viscera of a man, residing in the County of Cavan, who had died with symptoms of irritant poisoning, were submitted to me for analysis by the authorities. A plaster had been applied by a quack to a tumour from which the deceased suffered. After the death of the deceased the quack was arrested and placed in prison. Arsenic was detected in the liver and kidneys of the deceased, and a portion of the plaster which had adhered to the tumour was found to contain arsenic. In this case there was no doubt of the absorption of the poison from the plaster. Shortly before the time fixed for the trial, the accused died in prison.

Quite recently, in the County of Kilkenny, an embrocation was applied to the back of a cow, which shortly afterwards died with symptoms of poisoning. The embrocation was found to be concentrated solution of arsenic, and arsenic was detected in the stomach of the animal, and in a portion of the flesh to which the solution had been applied.

PERCENTAGES OF FATAL CASES IN ZYMOTIC DISEASES.

The report for the year 1889 of the medical authorities of the Metropolitan Asylums Boards gives very interesting statistics of the percentages of fatal cases in various diseases. The cases were treated in the infectious diseases hospitals and imbecile asylums and in the ambulance and training ship in the port of London. Only the infective diseases will be referred to here.

The following table shows the admissions of scarlet fever, diphtheria, and enteric fever:—

SCARLET FEVER.—TABLE *showing Mortality at various ages of* 30,306 *cases admitted into the Board's Hospitals.*

AGES	MALES			FEMALES			TOTAL		
	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Combined mortality per cent.
Under 1 -	39	11	28·20	36	13	36·11	75	24	32·00
1 to 2 -	138	51	36·95	150	49	32·66	288	100	34·72
2 to 3 -	297	74	24·91	301	74	24·58	598	148	24·74
3 to 4 -	479	89	18·58	391	68	17·39	870	157	18·04
4 to 5 -	475	58	12·21	459	59	12·85	934	117	12·52
Totals -	1,428	283	19·81	1,337	263	19·67	2,765	546	19·74
Under 5 -	4,308	937	21·75	4,219	853	20·21	8,527	1,790	20·99
5 to 10 -	5,882	486	8·26	6,463	484	7·48	12,345	970	7·85
10 to 15 -	2,323	98	4·21	2,718	112	4·12	5,041	210	4·16
15 to 20 -	966	51	5·27	1,238	38	3·06	2,204	89	4·03
20 to 25 -	430	17	3·95	674	23	3·41	1,104	40	3·62
25 to 30 -	197	12	6·09	341	13	3·81	538	25	4·64
30 to 35 -	121	9	7·43	178	12	6·74	299	21	7·02
35 to 40 -	47	6	12·76	93	5	5·37	140	11	7·85
40 to 45 -	30	5	16·66	31	1	3·22	61	6	9·83
45 to 50 -	5	—	—	18	1	5·55	23	1	4·34
50 to 55 -	10	1	10·00	10	—	—	20	1	5·00
55 to 60 -	1	1	100·00	1	—	—	2	1	50·00
And upwards	—	—	—	2	1	50·00	2	1	50·00
Totals -	14,320	1,623	11·34	15,986	1,543	9·65	30,306	3,166	10·44

N.B.—(1) The figures for each age-period from under 1 to 5 years relate only to the cases admitted during the years 1888–9.

(2) The above table includes deaths within 48 hours after admission, as well as deaths from intercurrent maladies.

DIPHTHERIA.—TABLE *showing Mortality at various ages of* 821 *cases admitted into the Board's Hospitals.*

AGES	MALES			FEMALES			TOTAL		
	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Combined mortality per cent.
Under 1 -	10	5	50·00	10	2	20·00	20	7	35·00
1 to 2 -	23	17	73·91	24	21	87·50	47	38	80·85
2 to 3 -	40	24	60·00	30	19	63·33	70	43	61·42
3 to 4 -	48	27	56·25	48	35	72·91	96	62	64·58
4 to 5 -	40	17	42·50	61	20	32·78	101	37	36·63
5 to 10 -	129	45	34·88	133	55	41·35	262	100	38·16
10 to 15 -	42	10	23·80	54	7	12·96	96	17	17·70
15 to 20 -	22	2	9·09	35	5	14·28	57	7	12·27
20 to 25 -	11	3	27·27	29	2	6·89	40	5	12·50
25 to 30 -	4	1	25·00	9	—	—	13	1	7·69
30 to 35 -	2	—	—	3	—	—	5	—	—
35 to 40 -	2	—	—	5	1	20·00	7	1	14·28
40 to 45 -	4	1	25·00	1	—	—	5	1	20·00
45 to 50 -	—	—	—	1	—	—	1	—	—
50 to 55 -	—	—	—	1	1	100·00	1	1	100·00
55 to 60 -	—	—	—	—	—	—	—	—	—
And upwards	—	—	—	—	—	—	—	—	—
Totals -	377	152	40·31	444	168	37·83	821	320	38·97

ENTERIC FEVER.—TABLE *showing Mortality at various ages of* 6,462 *cases admitted into the Board's Hospitals.*

AGES	MALES			FEMALES			TOTAL		
	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Combined mortality per cent.
Under 5 -	90	13	14·44	89	12	13·48	179	25	13·96
5 to 10 -	420	39	9·28	407	32	7·86	827	71	8·58
10 to 15 -	835	79	9·46	695	127	18·27	1,530	206	13·46
15 to 20 -	772	118	15·28	734	160	21·79	1,506	278	18·45
20 to 25 -	476	110	23·10	499	87	17·43	975	197	20·20
25 to 30 -	360	82	22·77	277	65	23·46	637	147	23·09
30 to 35 -	184	56	30·43	175	38	21·71	359	94	26·18
35 to 40 -	106	30	28·30	110	25	22·72	216	55	25·46
40 to 45 -	66	15	22·72	54	12	22·22	120	27	22·50
45 to 50 -	28	12	42·85	36	7	19·44	64	19	29·68
50 to 55 -	13	8	61·53	16	3	18·75	29	11	37·93
55 to 60 -	5	2	40·00	5	3	60·00	10	5	50·00
And upwards	6	3	50·00	4	1	25·00	10	4	40·00
Totals -	3,361	567	16·86	3,101	572	18·44	6,462	1,139	17·62

N.B.—The above table includes deaths within 48 hours after admission, as well as deaths from intercurrent maladies.

TYPHUS FEVER.—TABLE *showing Mortality at various ages of* 2,105 *cases admitted into the Board's Hospitals.*

AGES	MALES			FEMALES			TOTAL		
	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Mortality per cent.	Cases admitted	Died	Combined mortality per cent.
Under 5 -	38	1	2·63	47	1	2·12	85	2	2·35
5 to 10 -	102	1	0·98	138	—	—	240	1	0·41
10 to 15 -	166	3	1·80	202	11	5·00	368	14	3·80
15 to 20 -	158	10	6·32	190	18	9·47	348	28	8·04
20 to 25 -	118	27	22·88	121	22	18·18	239	49	20·50
25 to 30 -	73	19	26·02	78	14	17·95	151	33	28·47
30 to 35 -	75	25	33·33	83	22	26·50	158	47	29·74
35 to 40 -	53	25	47·17	73	20	27·39	126	45	35·71
40 to 45 -	73	45	61·64	94	35	37·23	167	80	47·90
45 to 50 -	42	21	50·00	53	21	39·62	95	42	44·21
50 to 55 -	22	15	68·18	37	20	54·05	59	35	59·32
55 to 60 -	14	9	64·28	18	15	83·33	32	24	75·00
And upwards	15	12	80·00	22	15	68·18	37	27	72·97
Totals -	949	213	22·44	1,156	214	18·51	2,105	427	20·28

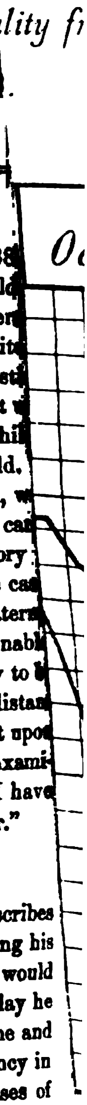
N.B.—The above table includes deaths within 48 hours after admission, as well as deaths from intercurrent maladies.

RETURN showing the Admissions and Deaths of Patients and Mortality per cent. at the Managers' FEVER HOSPITALS during each Year since the opening of the first Hospital on the 25th January, 1870, together with the Annual Mortality per 1,000 persons living of the Population of the Metropolis from Scarlet, Typhus, and Enteric Fevers, extracted from the Registrar-General's Annual Summaries.

YEAR	ADMISSIONS						DEATHS						Mortality per cent. of Patients treated in Managers' Hospitals				Annual Mortality per 1,000 of estimated Population			
	Scarlet	Diphtheria	Typhus	Enteric	Other Diseases	Total	Scarlet	Diphtheria	Typhus	Enteric	Other Diseases	Total	Relapsing Fever	Diphtheria	Typhus	Enteric	Scarlet	Diphtheria	Typhus	Enteric
1870 (25th Jan. to 15th May)	—	—	—	—	218	218	—	—	—	—	14	14	12·84	—	—	—	1·88	0·10	0·15	0·30
				(Relapsing Fever.)																
1871 }	—	—	—	—	—	—	—	—	—	—	—	—	Scarlet	—	—	—	0·58	0·11	0·12	0·27
1872 } (15 months to 31st Dec., 1872)	108	—	134	279	343	864	11	—	30	57	70	168	10 78	—	23 62	21·96	0·28	0·08	0·05	0·24
1873	92	—	401	381	271	1,145	6	—	91	56	58	211	6·55	—	23·15	15·13	0·19	0·09	0·08	0·27
1874	804	—	536	435	359	2,134	89	—	106	63	84	342	12·15	—	19·62	14·87	0·77	0·12	0·09	0 26
1875	1,182	—	65	299	269	1,815	160	—	16	78	54	308	13·69	—	23 35	24·63	1·06	0·17	0·04	0·23
1876	671	—	139	288	294	1,392	90	—	28	59	71	248	12 13	—	19·31	20·34	0 65	0·11	0·04	0·32
1877	479	—	170	372	186	1,207	54	—	36	79	33	202	12·1	—	23 07	21·93	0·44	0·09	0·04	0·25
1878	679	—	168	484	233	1,564	91	—	47	100	40	278	14·24	—	26·25	20·26	0·49	0·15	0·04	0·28
1879	1,469	—	48	385	196	2,098	211	—	11	74	39	335	15 27	—	21·56	19·78	0 72	0·15	0 02	0·23
1880	1,949	—	28	248	239	2,464	242	—	6	43	37	328	12·3	—	20·68	15·63	0·82	0 14	0·02	0·19
1881	1,477	—	219	415	211	2,322	168	—	34	86	46	334	11·1	—	16·95	21·47	0·55	0·17	0·02	0 25
1882	1,850	—	148	515	354	2,867	189	—	27	104	60	380	10·37	—	16·92	20·71	0·52	0·22	0·01	0·25
1883	1.920	—	45	486	269	2 720	234	—	11	74	66	385	12 38	—	21·15	15·64	0·51	0·24	0 01	0·24
1884	1,845	—	29	493	180	2,547	234	—	5	98	55	392	12 27	—	20·00	18·82	0 35	0·24	0 01	0·23
1885	1,353	—	53	220	229	1,855	130	—	7	36	46	219	9·47	—	12·17	15·82	0·18	0·22	0 01	0·15
1886	1,780	—	10	333	74	2,197	151	—	4	47	22	224	9·4	—	42·10	14·85	0·17	0·21	0·00	0·15
1887	5,900	—	85	441	161	6,587	489	—	4	61	59	613	9 54	—	11·59	14·59	0·34	0·23	0·00	0·14
1888	4,408	99	1	450	194	5,152	501	46	—	72	60	679	9 89	59 35	—	14·64	0·28	0·31	0·00	0·16
1889	4,518	722	23	290	219	5,772	366	275	6	41	48	736	8·85	40·74	31·57	15·15	0·18	0·37	0·00	0·12
Totals	32,484	821	2,252	6,814	4,499	46,870	3,416	321	469	1 228	962	6,396	10·76	42·51	20·86	18·14	—	—	—	—

THE RELATION BETWEEN COLD AND DISEASES OF THE O OF RESPIRATION.

In the accompanying Chart I show the relation between co the mortality caused by bronchitis and other diseases of the of respiration, other than phthisis, for a period of nine ye Dublin. In the spring a fall of temperature seems to h greater effect in causing bronchitis than in the autumn.



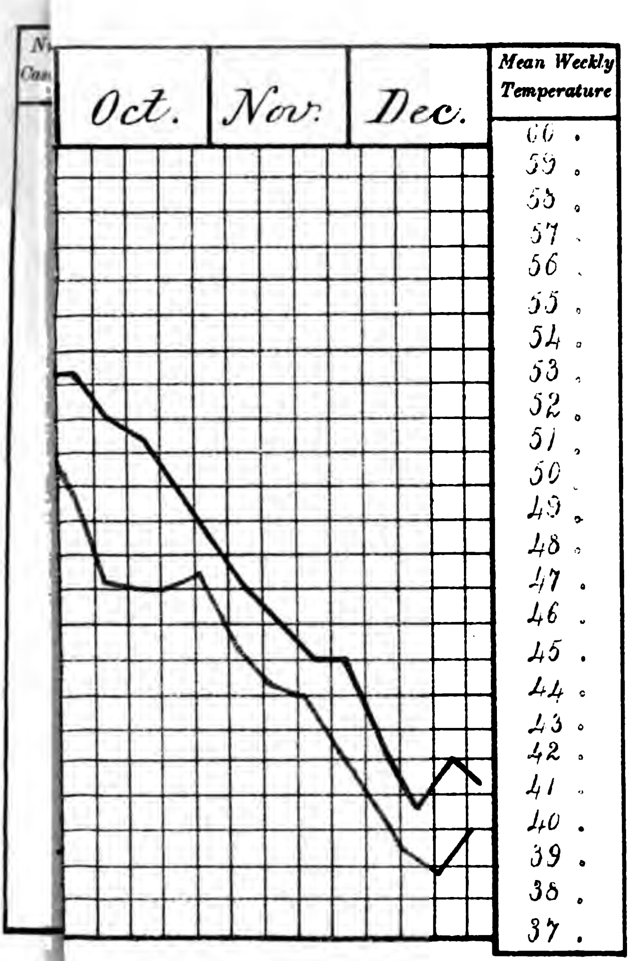
THE CŒLIAC AFFECTION IN CHILDREN.

Dr. R. A. Gibbons gives (*Edinburgh Medical Journal*, Oct., 188 detailed description of four cases of "The Cœliac Affection in Chil (so named by Dr. Gee). He thus sums up the general character "The disease is characterised by the passage of large, loose, whit whitish, frothy, intensely fœtid motions; by pallor of the skin; wast loss of muscular sense, and by the fact that it is most frequently met in children between one and five years of age. The youngest chi have seen attacked with it was between ten and eleven months old. have seen it in children with perfectly healthy parents, and, indeed, w sisters and brothers in every way healthy. In only one family ca trace any history of struma on the side of the father. No history tubercle can be traced in the family of any of the patients whose ca are related, except one, and in that consumption occurred in a patern uncle of the patient, and in all there is no history of syphilis obtainab and no reason to suspect it. In most of the cases there is a history to obtained of gout, either on the side of the father or mother, or in distan relations. The examination of the fæces themselves throws no light upo the matter. In those I have submitted to careful microscopical examination I have never been able to discover anything abnormal, and I have failed to detect any tubercle bacilli, although carefully searched for."

HALLUCINATION PECULIAR TO CHRONIC ALCOHOLISM.

Dr. M'D. Field (*New York Med. Journal*, Aug. 24th, 1889) describes an hallucination peculiar to chronic alcoholism. A patient, knowing his position and surroundings, that he was an inmate of an asylum, would yet describe in the most circumstantial way that on the previous day he had been away from the building, and describe where he had gone and what he had seen, all the time being unconscious of any inconsistency in his narrative. Dr. Field also states that a majority of the cases of alcoholic insanity which came into Belleville Hospital were the result of drinking what was known as mixed ale, and not of indulgence in the stronger liquors.

lity from Diseases of



ekly temperature.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Samuel Gordon, M.D., F.K.Q.C.P.I.
General Secretary—W. Thomson, M.D.

SECTION OF PATHOLOGY.

President—E. H. Bennett, M.D.
Sectional Secretary—J. B. Story, F.R.C.S.I.

Friday, February 14, 1890.

The President in the Chair.

Two Corneal Tumours.

Mr. A. H. Benson brought forward two corneal tumours; and **Dr. W. Graves** exhibited lantern illustrations of microscopic sections from the growths. Dr. Graves regarded one as a lymphoma, and the other as a fibroma.

Drs. Story, Patteson, M'Kee, and **Scott** criticised the communication, commenting upon the rareness of corneal tumours in general, and expressing their doubts as to the correctness of the diagnosis made of the present specimens.

At the conclusion of the debate the specimens were referred to the Committee of Reference for examination and report.

Rectal Neoplasms.

Dr. C. B. Ball and **Dr. J. Alfred Scott** gave lantern illustrations of rectal neoplasms.

Dr. Scott explained the apparatus with which he had worked.

After remarks from **Drs. M'Kee, M'Weeney,** and **Patteson,**

Dr. Ball, in reply, said that, as to the causation of these fibrous polypi from ordinary internal piles, which he had put forward, most of the points which had suggested that idea were clinical rather than pathological. They found ordinary internal piles in the first instance soft and highly vascular, consisting of a lot of very loose connective tissue covered with mucous membrane, and containing a large number of very dilated veins, thrombosed with laminated clots and, very frequently, arteries of moderate size. But if they examined sections of piles which existed for many years they would find that the connective tissue element had greatly increased, while the vascular element was not at all a noticeable feature, and, as they went still further on, the formations became pedunculated. The view that these originated in piles was more based on clinical observation than microscopic examination. With regard to Professor Symington's theory, that the anus was a canal, and not an opening, it explained many things that he (Dr. Ball) had been unable satisfactorily to account for before—one being the height to which, under ordinary circumstances, the mucous membrane was to be met with; and another, that tumours which were perfectly reducible were found within the rectum, and not appearing externally, and still covered with squamous epithelium. The canal was lined with skin till it joined with the mucous membrane; but in frozen sections the canal appeared to have very little existence. Of course, the conditions were very different during life and after a frozen section had been made; for after death the sphincter was relaxed, and then, to a certain extent, there was an open cavity; whereas, during life it was closed. A digital examination would convince anyone of the truth of Professor Symington's observation.

Columnar-celled Epithelioma of the Lower Jaw.

Dr. E. J. M'Weeney exhibited a specimen of columnar-celled epithelioma of the lower jaw, with metastatic deposit in the portal fissure.

The Section adjourned.

Friday, March 21, 1890.

The President in the Chair.

Case of Acute Traumatic Malignancy.

Sir William Stokes submitted a case of acute traumatic malignancy.

Case of Lympho-Sarcoma of Neck.

Dr. J. K. Barton presented the following case of lympho-sarcoma of neck:—A tumour, occupying the whole of the right side of the neck, had been growing for four years, the first three of which it was only the size of a filbert nut. It then suddenly commenced to grow, and attained its present size in three months. Fluctuation elicited in one part. Edges undefined. Diagnosis a lympho-sarcoma, which had burst through the capsule and had become diffused through all the structures of the neck.

The patient, a strong, robust countryman, had become subject to fits of a remarkable kind. He suddenly became pale, fell over if sitting up, his pulse disappeared, and he lost consciousness for about one minute. He then recovered; his colour and pulse returned, and he sat up.

An operation was performed, to see how far the growth could be removed, in the course of which the common carotid artery of the right side of the neck, lying behind the tumour and compressed by it, was found to be completely occluded. At its bifurcation a rent was torn in it, but no blood escaped; it was firmly occluded lower down.

Dr. Barton drew attention to *three* pathological facts of interest—1st, the growth of the tumour; 2nd, the fits from which the patient suffered, which may have been produced by the compression of the pneumogastric nerve by the tumour; 3rd, the occlusion of the carotid artery by the pressure of the growth upon it and round it.

Tumour of the Brain; atrophy of the Right Kidney, with compensatory hypertrophy of the Left Kidney.

Dr. Joseph Redmond showed the brain and kidney which were removed from the body of a patient, aged twenty-nine, who died in the Mater Misericordiæ Hospital on the 30th of April, 1889. The patient received a severe blow of a baton over the right ear in December, 1888, which stunned him somewhat. From that time until his death he complained of severe pain in the right side of his head, and also suffered from fits, which occurred at intervals of about one week. During these attacks he was apparently unconscious, but the patient stated that he was thoroughly conscious of all that was passing around him at the time. These attacks were characterised by some of the ordinary symptoms which are present in epileptic seizures; the patient simply sank into an apparently unconscious condition, which lasted for 10 or 15 minutes. On the evening of his death the patient had a number of such attacks, during one of which he expired. The autopsy showed a slight depression at the posterior portion of the right parietal bone, to which the dura mater adhered. On examining the brain a tumour somewhat larger than a pigeon's egg was found in the region of the angular and supra-marginal gyri, which extended into the substance of the hemisphere. The right kidney was found to be atrophied and the left hypertrophied.

Dr. M'Weeney said the peripheral portion of the tumour consisted of small-celled structure, but that the internal portion of it was structureless. It was surrounded by thick connective tissue, in which could be seen numerous small thickened blood-vessels. The specimen under the microscope showed the disappearance of the nerve-fibres from the cortex of the brain in the immediate neighbourhood of the tumour. The latter was of a syphilitic character, as far as he could make out. He did not see any reason to regard it as tubercular. There was a small scar in the liver, which looked like a result of tertiary syphilis. Why he regarded the tumour as syphilitic was that it involved both the pia mater and the dura mater, which were adherent together.

Lupus of Larynx.

DR. WALTER G. SMITH exhibited the larynx of a man who had died of pneumothorax consequent upon extensive tubercular disease of the lungs. There was also amyloid degeneration of liver, spleen, kidneys, and intestines.

Fourteen years previously Dr. Bennett had successfully performed the Indian operation for an artificial nose, owing to the destruction effected by old-standing lupus of the face.

At the *post-mortem* examination both lungs were found riddled with vomicæ. Tubercle bacilli were found in their contents. The larynx was involved to a considerable extent. The free edge of the epiglottis had nearly disappeared; what remained was thickened and irregular. There was no ulceration of cords, true or false. Between the arytenoids were several pyramidal outgrowths, projecting above and below the rima glottidis.

The case illustrated the supervention of tubercular phthisis upon cutaneous lupus, and was compared with Leloir's case of lupus of face, tongue, and larynx, published in the "International Atlas of Rare Skin Diseases."

Rupture of the Heart.

The PRESIDENT of the Academy having taken the chair,

The PRESIDENT of the Section (Dr. Bennett) exhibited a case of rupture of the heart. The man had been found dead on the railway with several fractures of the limbs and a scalp wound, but no fracture of the skull. They found no external sign or trace of injury to the thorax in front. A large portion of the sternum was detached from the rest of the skeleton and thrust down on the underlying viscera, all the costal cartilages from the 2nd to the 8th being broken as well. The pericardium and the pleura were found full of blood. At the apex of the right ventricle there was a large rupture. There was another great rent into the right auricle. There was no laceration, neither was there any blood-clot in the heart, nor any rupture of the valves or of the chordæ tendineæ. In the auricular appendix and the musculi pectinati there were a couple of small ruptures. In the back of the heart, at the left auricle, in the interval between the entrance of the pulmonary veins, there were two or three large lacerations. The left auricular appendix was ruptured; but the left ventricle was free of rupture, or of any lesion whatever. Clearly what happened was, that the heart being full of blood, pressure of the detached bone burst the whole of the three chambers.

The Section then adjourned.

SECTION OF SURGERY.

President—**Austin Meldon**, President of the Royal College of Surgeons, Ireland.

Sectional Secretary—**Mr. W. Thornley Stoker.**

Friday, February 21, 1890.

Mr. Edward Hamilton in the Chair.

Erasion of the Knee-joint.

Mr. Lentaigne, at the request of the Chairman, described the operation of erasion of the knee-joint which he had performed upon a young man whom he exhibited. The patient had been two years and four months suffering from white swelling of the knee-joint previous to the operation, but no external sinuses had appeared. The case seemed to be suitable for erasion, and he performed the operation, which was his first of the kind, by making the usual horseshoe incision. After denuding the patella he saw clear through the middle of it. Turning down the lower and turning up the upper fragments, respectively, he removed all the synovial membrane, cleaning away a mass of tubercular tissue in the crucial ligaments. Then he stitched with catgut the lateral ligaments, which were both cut, and the patella. The condition of the joint was that of pretty advanced tubercular disease. In parts, the synovial membrane was about an inch thick, with a caseous mass in the centre. Inside the joint there was apparently an abscess, due to the breaking down of a caseous mass. As regards after-treatment, he applied permanent dressing, using plenty of iodoform and large rubber drainage-tubes, which remained for a month, when the knee was again dressed. The patient wore Thomas's splint, which tended to the success attained. It was intended that he should return after a year to get the knee flexed, but he (Mr. Lentaigne) feared that in trying to restore full functional value by forcible flexion harm might be done.

On a Series of One Hundred Cataract Extractions.

Mr. Swanzy read a paper on a series of one hundred cataract extractions. He employs the three-millimetre flap operation, with a very narrow iridectomy in the upper quadrant of the iris. He instils eserin prior to the operation to facilitate the obtaining of a neat coloboma, which it is difficult to procure if the iris prolapses, and the reduction, after delivery of the lens, of all the rest of the iris into the anterior chamber. Quite a narrow coloboma is required, and is sufficient to efficiently protect the eye against the danger of secondary iris-prolapse in the course of the healing—a danger to which eyes operated on by the simple method are so liable, as it provides a gateway by which the aqueous humour contained in the posterior chamber may escape through the wound, without carrying with it a portion of iris. Mr. Swanzy considers that such an iridectomy is no "mutilation of the iris," but rather a measure which rests upon a sound scientific basis, and which is calculated to protect the eye against a serious danger. In this series the iris was incarcerated in the cicatrix in one eye only. After the lens is delivered Mr. Swanzy searches the wound carefully with an iris-forceps for any tag of capsule which may have prolapsed into it, and if any be found, it is drawn gently forwards and snipped off with the scissors. A tag of capsule was found in the wound in nine of the 100 eyes operated on. He strongly recommends this proceeding. The antiseptic measures consist in the washing of the patient's face with hot water and soap, and the washing and wiping out of the conjunctival sac with a 1 in 5,000 solution of sublimate lotion just before the operation, while all through the latter the same lotion is used for wiping and irrigating the wound and surface of the eyeball. No sponges are used, but small bits of lint which have been boiled in the sublimate solution, and which are kept stored in it. The solutions of eserin, cocaïn, and atropin are all made with sublimate solution, 1 in 5,000. Prior to the operation the instruments are boiled, washed in absolute alcohol, and laid ready for use in a bath of a 1 per cent. solution of carbolic acid. After the operation they are again washed in absolute alcohol. The dressing consists in a layer of lint previously boiled in sublimate lotion, and wet with it; over this absorbent wool similarly boiled and wet, then a layer of oiled-silk protective, and then the bandage. This is not disturbed for 48 hours.

The results obtained consisted in 93 per cent. good vision, 5 per cent. moderate vision, and 2 per cent. losses. The two losses were due to suppuration, and were the only cases of suppuration which occurred. In each of them the operation had been normal.

The **Chairman** noted with interest the careful manner in which the antiseptic system of surgery was apparently carried out in the operations; and he suggested a discussion upon the value of iridectomy as part of, or an element in, the operation of cataract extraction.

Mr. Story asked whether the series represented the last one hundred cases in which Mr. Swanzy performed the extraction of cataract by the three-millimetre flap, with iridectomy, and so included cases complicated and uncomplicated—*i.e.*, with dislocation of the lens, synechia anterior, and synechia posterior, the result of old iritis. But even if the series consisted of one hundred selected cases, the results attained were admirable, as showing a total loss of only 2 per cent., while achieving moderately fair sight in 5 per cent., and good in 93 per cent. (taking it as "good" when the patient had a vision of six-sixtieths). In the *Dublin Medical Journal*, 1880, he himself published a series of his first 47 cataract extractions, showing a loss of 7 or 8 per cent., recording as loss or failure where the patient could not count figures at a yard or two yards off, and he found that the records of 11,000 or 12,000 extractions disclosed a similar percentage of failures. Hence the question which he asked. He agreed with Mr. Swanzy as to iridectomy forming part of the operation, being of opinion that it facilitated the removal of the lens, and prevented the danger of prolapse of the iris. He also agreed with Mr. Swanzy as to the importance of antiseptic precautions. In St. Mark's Hospital a different plan was followed. The eye was washed with a solution of hydro-naphthol, and the instruments were boiled in the same; while the operation was done under cocaïn. He did not, however, take the trouble Mr. Swanzy advocated, of inserting an iris forceps afterwards to search for pieces of capsule. He dusted over the surface of the wound and eyeball with finely powdered iodoform. As regards irrigation, proposed by Dr. M'Keown, of Belfast, for washing out the cortex, he had not found it useful. The cortex was injured by nearly all the substances employed to wash out the anterior chamber, even by pure water. In his paper he had advocated the three-millimetre flap extraction in opposition to the linear extraction of von Graefe, which was then in vogue. It was a mistake to call the operation von Graefe's; for the operation owed its existence to De Wecker, one of the great ophthalmologists of Paris. Shortly after De Wecker described it, he read the paper, and was struck with the simplicity of the operation, which he was the first to perform in this country. He advocated the operation, but it met with Mr. Swanzy's disapproval at the time. Therefore, it was a pleasure to find that Mr. Swanzy now considered it the best operation for cataract extraction.

Mr. Fitzgerald said Mr. Swanzy had distinctly stated that the operation was not von Graefe's, but was von Graefe's modified. The operation which he himself had been in the habit of doing was identical with Mr. Swanzy's up to a short time ago, when he determined to try the simple operation—the extraction without iridectomy. He did not make his incision quite the same as Mr. Swanzy's; he made his puncture a little outside the clear cornea, and he brought the upper part of the flap well into the clear cornea. For comparison he was anxious to give statistics—26 cases of extraction without the iridectomy in hospital practice, and also 56 in private practice, and then going back and taking 26 with iridectomy in private practice; but the 26 hospital cases with iridectomy he had been unable to procure. He judged his results more hardly than Mr. Swanzy, who seemed content to take as "good" if he could procure the counting-fingers at a few metres off. Up to the present he had himself no case to deplore, and he recollected no case of suppuration. Therefore, as far as he had gone, the results from the simple operation proved immensely superior to those obtained with iridectomy. The reasons which induced him to undertake the operation were those urged by De Wecker, and, so far, he had had no cause to regret it. Although he had had two cases of prolapse of the iris, he thought there was needless alarm, and that by using the eserin after the operation, by careful bandaging and keeping the patient quiet for twenty-four hours, there need be no apprehension of it. Of secondary operations he had had a good number, but not more than Mr. Swanzy. The difficulty of giving statistics of hospital cases arose from the fact that the hospital patients seldom returned unless compelled when they had got a cataract in the other eye; but in private practice the patients came to get further improvement of vision. As regards antiseptic treatment, he carried it out more in the way Mr. Story described than in Mr. Swanzy's. He could not rise to the point of boiling the instruments, which was very destructive of them, at least of the handles. He used hydro-naphthol, but he did not use atropin or eserin before the operation. In the dressings, bandage was the same as Mr. Swanzy's.

Mr. Maxwell would perform iridectomy where the cataract was large and hard, but would dispense with it where the cataract was soft and small. He would not select lenses till at least two weeks after the operation.

Mr. Swanzy replied.—His one hundred cases were not selected, but related to all those in which he had operated to the end of 1888, excluding, of course, such a case as that of a man having a bad injury of the eye, and among them a traumatic cataract, or of a young person with a cataract coming on. His classification of results was in accordance with the handy conventional method of recording them as adopted by Professor Knapp and others—viz., "no improvement," 2; "moderate," 5; and "good," 93 per cent. But he would not set down as "good" the ability to count fingers merely at three or four metres. Where the vision reached the standard of six-sixtieths, he regarded that as good already, with every probability of getting better. With regard to antiseptics, he had found more satisfaction from the use of 1–5,000th solution of sublimate than any other. He had no idea about hydro-naphthol; but he abominated iodoform in every respect. As regards the introduction of the three-millimetre flap operation into Dublin, he did not know of anybody having done it before himself. He had been performing it for some years, and whether or not Mr. Story began it two or three months before him did not matter. He did not call it von Graefe's operation. What he said was, that it was known as von Graefe's operation, of which it was the lineal descendant; not as von Graefe left it when he died, but von Graefe's improved upon, and so properly called his. As to Mr. Fitzgerald's operation being, or having been, identical with his own, perhaps it was, so far as the position of the incision in the margin of the cornea went; but he was not quite sure that it was in respect of the minute coloboma, or the particular care taken in respect of the capsule in the wound which he regarded as a vital matter. Prolapse of the iris, with subsequent incarceration in the cicatrix, was a danger, and in his series of 100 cases it occurred once; but in Mr. Fitzgerald's 52 it occurred twice, being nearly 4 per cent.—a result nearly as good as Prof. Knapp's. Mr. Fitzgerald's cases of full vision were due to his performing decision of the capsule, and not because he left out the iridectomy. As regards iridectomy, its performance did not, as Mr. Maxwell had suggested, depend on whether the cataract was soft or hard, whether the patient was going to get a prolapse of the iris or not, but whether the wound would properly heal and remain healed by primary union and without rupture. He had yesterday received a letter from one of the most distinguished ophthalmic surgeons in the United States, who stated that in 30 per cent. of his cases he had had prolapse, sometimes coming on some days after the operation without apparent cause, and that when men recorded cases without prolapse he simply doubted their statistics. With regard to Mr. Maxwell's point of ordering lenses two weeks or so after the operation, they should not be ordered until the eyes were white, not tearing or watering.

The Section adjourned.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—Prof. J. M. Purser, M.D., F.K.Q.C.P.
Sectional Secretary—A. Birmingham, M.B.

Friday, March 14, 1890.

The President in the Chair.

Exhibits.

Professor Birmingham exhibited (1) a right lung, the upper and inner parts of which, including the whole of the apex, were marked off by a deep fissure as a supernumerary lobe; the fissure was occupied by a fold of pleura in the free margin of which the arch of the azygos vein was contained. By this fold of pleura the upper part of the pleural sac was partitioned off, as a pocket-like cavity, in which the supernumerary lobe lay. The anomaly was explained by supposing that the azygos vein had been displaced laterally, and that the heart in descending had pulled the vein through the substance of the lung external to the apex. (2) The two halves of the nasal fossæ—one with the mucous membrane removed, the other with the membrane intact—in which there was almost complete absence of the ethmo- and maxillo-turbinal bones.

Professor Cunningham remarked upon the rarity of the condition.

Professor Bennett considered that it was not pathological.

The Lantern as an Aid to Anatomical Demonstrations.

Professor Birmingham gave a demonstration of the magic lantern applied to the illustration of anatomical lectures. He pointed out that the lantern might be used in daylight in a theatre with a head light, if the screen were provided with a projecting canopy, so that a penumbra might be produced on its surface. He explained the making of slides, either by photography or by the hand; the latter method gave the most striking results for anatomical purposes. They were drawn with a fine pen in Indian ink, either upon prepared glass, prepared sheets of mica, or upon thin sheets of gelatine, which were afterwards placed between two sheets of glass. He had been using this means of illustration (in addition to blackboard diagrams in coloured chalks) daily for two years, and he had found it thoroughly satisfactory. He confidently advocated the systematic use of the lantern for anatomical illustration. He then showed a large number of diagrams illustrating anatomical subjects.

The **President** said that he had made experiments with the lantern in his own theatre, but his results were not as good as Professor Birmingham's when the theatre was not completely darkened. Moreover, he did not think that the lantern ought to be allowed to replace diagrams in coloured chalks.

Collective Investigation.

Reports on—(1) *The formation of the Portal Vein.* (2) *The arrangement of the renal arteries.* (3) *The relation of the internal maxillary artery to the external pterygoid muscle.* (4) *The Tuberculum Laterale of the os calcis.*

On the motion of **Professor Cunningham**, the interim reports of the Collective Investigation conducted in the Anatomical Department of Trinity College were read by the gentlemen who had charge of the different investigations, as follows:—

I. **Dr. W. Henry Thompson**—*Formation of the portal vein.*—Out of 53 cases the *inferior mesenteric* ended in the splenic in 30, in the superior mesenteric in 20, and in the angle between both in 3. Out of 44 cases the *coronary* ended in the portal in 26 cases, in the splenic in 18. Four chief "types" of portal were found in the 44 subjects—(1) found in 16, the inferior mesenteric joined splenic, coronary entered portal; (2) found in 11, the inferior mesenteric joined the superior, coronary entered splenic; (3) found in 7, both inferior mesenteric and coronary entered splenic; and (4) found in 7, neither inferior mesenteric nor coronary joined splenic, former joined superior mesenteric, latter joined portal. The first of these is considered normal. Out of 46 cases the portal vein was formed at the level of second lumbar vertebra in 32.

II. **Messrs. A. C. O'Sullivan** and **O. L. Robinson**—*The arrangement of the renal arteries.*—Forty-three subjects examined. In number they varied from 1 to 4. One or more arteries always entered the hilum, in 18 cases an accessory artery entered at upper or lower border; accessory arteries arose from aorta or renals, except in one case—from the common iliac. In 46 cases all branches passed between vein and ureter, in 6 they enclosed vein and ureter, in 11 enclosed vein only, in 6 ureter, and in other 6 all the arteries passed in front of vein.

III. **Mr. J. J. Long**—*The relation of the internal maxillary artery to the external pterygoid muscle.*—Eighty-eight arteries examined. The artery ran superficial to the muscle in 50 per cent. of the cases, and then entered between its two heads. In 42 cases the artery lay deeper than the external pterygoid; in 19 of these cases the inferior dental, and in 7 cases the lingual nerve passed down superficial to the artery.

IV. **Mr. C. E. Stokes**—*The Tuberculum Laterale of the astragalus.*—Seventy-two cases examined, two examples of os trigonum found, in each case connected to the astragalus by a synovial joint, which communicated with the posterior astragalo-calcaneal, and in each case the os trigonum gave partial attachment to the posterior fasciculus of the external lateral ligament of the ankle-joint.

Professor Cunningham reminded the Section that this was the second Report of the Collective Investigation read before the Academy. Last year different, and in his opinion more interesting, subjects were taken up and reported upon. A somewhat similar Collective Investigation was instituted late last year in connection with the Anatomical Society of Great Britain and Ireland, which it was proposed to extend to all the Schools in these countries; this placed the anatomical department with which he was connected in a dilemma. While extremely anxious to take part in the general work, yet they felt that this result ought to belong to the Royal Academy of Medicine in Ireland. After some correspondence on the matter it was arranged that the programme of the Anatomical Society should be adopted, but that the reports from the Irish branches should be read at the Royal Academy of Medicine in Ireland, published in its Transactions, and then handed over to the Anatomical Society.

Professor Birmingham said that the gentlemen who carried out the investigation deserved the thanks of the Section for the interesting Reports which they had just read. He pointed out that Dr. Thompson's Report on the termination of the inferior mesenteric vein differed from the results of Treves, who found that the vein terminated in the splenic in only 18 per cent. of his hundred cases. Treves considered this ending a sign of higher development. Would Dr. Thompson's results therefore point to the conclusion that the Irish whom he examined are more highly developed than those examined by Treves?

Professor Bennett was glad that the Reports of the Collective Investigation were brought before their Academy, instead of being handed over to the Anatomical Society. Some years ago there was a Collective Investigation instituted in London for the purpose of examining into the pathology of hydrophobia. He fortunately obtained a spinal cord at a *post mortem* on a case of hydrophobia; he sent the cord intact as directed to London, but from that day to this he never heard one word about that cord. So he thought they had better do their own work at home.

The Parieto-occipital and Calcarine Fissures of the Brain; their Development aud Relation to the Calcar Avis.

Professor Cunningham made a communication, illustrated with diagrams, on the development of the parieto-occipital and calcarine fissures and their relation to the calcar avis. He referred to the conflicting views held regarding the development of these fissures, the difficulty in connection with their study being due to the fact that their origin is synchronous with that of the transitory fissures of the brain, and they lie in series with them. For those early fissures corresponding in position to the parieto-occipital and calcarine, he proposed the name of "precursors" of these fissures. He traced the connection between the precursors and the permanent fissures, and showed how the history of either of the two fissures might be made out, not only in the brain of the seven months' fœtus, but even, in most cases, in the adult brain. He also adduced phylogenetic evidence in reviewing the question, but he showed that this was in several respects at variance with the onto-genetic evolution of the fissures under consideration.

Professor Birmingham said that the fissures discussed by Professor Cunningham were very unsatisfactorily dealt with in the usual descriptions of their development. He asked what eminence each fissure produced in the interior, if each produced a separate eminence in the adult brain.

Professor Cunningham replied that there was one eminence in the interior—the calcar avis—which belonged sometimes to the calcarine, sometimes to the parieto-occipital fissure, according as the stem of the "Y"-shaped fissure formed in the adult by the union of these two fissures belonged to the former or the latter fissure.

The Section adjourned.

DEATH FROM INTESTINAL OBSTRUCTION BY A GALL-STONE.

At a meeting of the Midland Medical Society on the 26th of February, 1890, Mr. Messiter showed a large gall-stone that had caused a fatal obstruction by becoming impacted in the small intestine.—*Birmingham Medical Review.*

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.K.Q.C.P.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, July 12, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	June 21.	June 28.	July 5.	July 12.		June 21.	June 28.	July 5.	July 12.
Armagh -	5·2	0·0	20·7	20·7	Limerick -	24·3	18·9	13·5	13·5
Belfast -	23·1	22·9	19·5	19·8	Lisburn -	9·7	19·3	19·3	9·7
Cork -	17·5	27·9	16·9	19·5	Londonderry	23·2	8·9	16·0	23·2
Drogheda	25·4	4·2	46·5	16·9	Lurgan -	10·3	15·4	10·3	10·3
Dublin -	20·7	21·7	21·7	20·7	Newry -	14·0	49·2	0·0	14·0
Dundalk -	13 1	21·8	8·7	26·2	Sligo -	19·2	14·4	14·4	14·4
Galway -	53·8	40·3	37·0	20·2	Waterford -	11·6	16·2	32·4	16·2
Kilkenny	16·9	16·9	4·2	12·7	Wexford -	21·4	4·3	4·3	17·1

In the week ending Saturday, June 21, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 16·4), was equal to an average annual death-rate of 17·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·1 per 1,000. In Glasgow the rate was 25·8, and in Edinburgh it was 16·9.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 21·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in ten of the districts to 33·6 in Galway—the 16 deaths from all causes registered in that district comprising 10 from measles. Among the 103 deaths from all causes registered in Belfast are 4 from measles, 2 from scarlatina, 3 from whooping-cough, 1 from simple continued fever, 2 from enteric fever, and 2 from diarrhœa.

In the Dublin Registration District the births registered amounted to 191—90 boys and 101 girls; and the deaths to 141—70 males and 71 females.

The deaths, which are 27 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·8 in every 1,000 of the estimated population. Omitting the death of a person admitted into the South Dublin Union Workhouse from without the district, the rate was 20·7 per 1,000. During the first twenty-five weeks of the current year the death-rate averaged 30·2, and was 0·3 under the mean rate in the corresponding period of the ten years 1880–89.

There were but 12 deaths from zymotic diseases registered, being 3 under the low number for the preceding week, and 11 below the average for the twenty-fifth week of the last ten years. They comprise 1 from measles, 1 from influenza, 4 from whooping-cough, 2 from enteric fever. The deaths from zymotic diseases recorded during the last six weeks show a decline of 40 per cent. as compared with the average for the corresponding periods in the ten years 1880–89.

Ten cases of enteric fever were admitted to hospital, being 1 over the number for the preceding week, but 3 under the number for the week ended June 7. Sixteen enteric fever patients were discharged, 4 died, and 40 remained under treatment on Saturday, being 10 under the number in hospital at the close of the preceding week.

Three cases of typhus were admitted to hospital, against 2 for the preceding week, but no cases of scarlatina or of measles were received; 4 cases of typhus, 2 of scarlatina, and 4 of measles remained under treatment in hospital on Saturday.

Twenty-nine deaths from diseases of the respiratory system were registered, being 3 in excess of the average for the corresponding week of the last ten years, and 1 over the number for the week ended June 14. They comprise 14 from bronchitis and 14 from pneumonia or inflammation of the lungs.

In the week ending Saturday, June 28, the mortality in twenty-eight large English towns, including London (in which the rate was 15·9), was equal to an average annual death-rate of 16·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·6 per 1,000. In Glasgow the rate was 23·5, and in Edinburgh it was 17·3.

The average annual death-rate in the sixteen principal town districts of Ireland was 21·1 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in seven of the districts to 16·8 in Galway—the 12 deaths from all causes registered in that district comprising 4 from measles (being 6 under the number from that disease in the preceding week), and 1 from whooping-cough. Among the 102 deaths from all causes registered in Belfast are 2 from measles, 4 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 1 from diarrhœa; and the 5 deaths in Dundalk comprise 1 from measles and 1 from diarrhœa.

In the Dublin Registration District the births registered amounted to 210—125 boys and 85 girls; and the deaths to 152—84 males and 68 females.

The deaths, which are 19 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·4 in every 1,000 of the estimated population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 21·7 per 1,000. During the first twenty-six weeks of the current year the death-rate averaged 29·9, and was 0·4 below the mean rate in the corresponding period of the ten years 1880-89.

Twenty-three deaths from zymotic diseases were registered, being 11 over the low number for the preceding week, but 1 under the average for the twenty-sixth week of the last ten years. They comprise 4 from measles, 1 from typhus, 4 from whooping-cough, 4 from enteric fever, 1 from from diarrhœa, 1 from dysentery, 1 from erysipelas.

The number of cases of enteric fever admitted to hospital is 8, being 2 under the admissions for the preceding week. Nine enteric fever patients were discharged, and 39 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

Four cases of measles were admitted, but the admissions do not include any cases of typhus or of scarlatina; 6 cases of measles, 3 of typhus, and 1 of scarlatina remained under treatment in hospital on Saturday.

Only 17 deaths from diseases of the respiratory system were registered, being 12 under the average for the preceding week, and 10 below the average for the twenty-sixth week of the last ten years. They comprise 8 from bronchitis and 6 from pneumonia or inflammation of the lungs.

In the week ending Saturday, July 5, the mortality in twenty-eight large English towns, including London (in which the rate was 17·5), was equal to an average annual death-rate of 17·4 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·9 per 1,000. In Glasgow the rate was 24·4, and in Edinburgh it was 14·6.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 19·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in ten of the districts to 8·5 in Drogheda—the 11 deaths from all causes registered in that district comprising 2 from typhus. Among the 87 deaths from all causes registered in Belfast are 1 from measles, 6 from whooping-cough, 2 from diphtheria, 2 from enteric fever, and 2 from diarrhœa. The 26 deaths in Cork comprise 1 from whooping-cough and 2 from diarrhœa. The 14 deaths in Waterford comprise 1 from measles and 1 from diarrhœa.

In the Dublin Registration District the births registered amounted to 219—113 boys and 106 girls; and the deaths to 156—79 males and 77 females.

The deaths, which are 2 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·0 in every 1,000 of the estimated population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the district, the rate was 21·7 per 1,000. During the first twenty-seven weeks of the current year the death-rate averaged 29·9, and was 0·4 under the mean rate in the corresponding period of the ten years 1880–89.

Only 15 deaths from zymotic diseases were registered, being 10 below the average for the corresponding week of the last ten years, and 8 under the number for the week ended June 28. They comprise 1 from typhus, 4 from whooping-cough, 1 from diphtheria, 2 from enteric fever, 1 from hydrophobia. The death from hydrophobia, which is that of a male labourer aged 18 years, occurred in Clontarf on July 4: the return as to cause of death is "Hydrophobia, 2 days 4 hours: Inquest."

Eight cases of enteric fever were admitted to hospital, being equal to the number of admissions for the preceding week. Ten enteric fever patients were discharged, and 37 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, June 28.

No cases of measles, scarlatina, or typhus were admitted to hospital: 6 cases of measles, 1 case of scarlatina, and 2 cases of typhus remained under treatment in hospital on Saturday.

Eighteen deaths from diseases of the respiratory system were registered, being 1 over the number for the preceding week, but 3 under the average for the twenty-seventh week of the last ten years. They consist of 13 from bronchitis and 5 from pneumonia or inflammation of the lungs.

In the week ending Saturday, July 12, the mortality in twenty-eight large English towns, including London (in which the rate was 17·4), was equal to an average annual death-rate of 17·7 per 1,000 persons

living. The average rate for eight principal towns of Scotland was 19·7 per 1,000. In Glasgow the rate was 23·0, and in Edinburgh it was 16·7.

The average annual death-rate in the sixteen principal town districts of Ireland was 19·4 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·5 per 1,000, the rates varying from 0·0 in ten of the districts to 4·4 in Dundalk—the 6 deaths from all causes registered in that district comprising 1 from simple-continued fever. Among the 88 deaths from all causes registered in Belfast are 1 from scarlatina, 3 from whooping-cough, and 3 from diarrhœa. The 30 deaths in Cork comprise 1 from enteric fever and 1 from diarrhœa.

In the Dublin Registration District the births registered amounted to 161—79 boys and 82 girls; and the deaths to 144—66 males and 78 females.

The deaths, which are 5 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 20·7 per 1,000. During the first twenty-eight weeks of the current year the death-rate averaged 29·3, and was 0·5 below the mean rate in the corresponding period of the ten years 1880–89.

Eighteen deaths from zymotic diseases were registered, being 3 over the low number for the preceding week, but 5 under the average for the twenty-eighth week of the last ten years. They comprise 5 from measles, 3 from whooping-cough, 4 from enteric fever, 1 from dysentery, &c.

Only 3 cases of enteric fever were admitted to hospital, being 5 under the admissions for the preceding week. Three enteric fever patients were discharged, 2 died, and 35 remained under treatment on Saturday, being 2 under the number in hospital Saturday, July 5.

Two cases of measles and 1 case of scarlatina were admitted to hospital; during the preceding week no cases of either disease were received. Seven cases of measles and 1 of scarlatina remained under treatment in hospital on Saturday.

No cases of typhus have been admitted to hospital for the last fortnight, and there was not one case of the disease in hospital on Saturday.

Twenty-three deaths from diseases of the respiratory system were registered, being equal to the average for the corresponding week of the last ten years, and 5 over the number for the week ended July 5. They comprise 10 from bronchitis and 10 from pneumonia or inflammation of the lungs.

VITAL STATISTICS

For four Weeks ending Saturday, August 9, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	July 19	July 26	Aug. 2	Aug. 9		July 19	July 26	Aug. 2	Aug. 9
Armagh -	20·7	20·7	10·3	15·5	Limerick -	12·1	8·1	18·9	8·1
Belfast -	22·2	21·1	26·3	22·2	Lisburn -	4·8	19·3	14·5	9·7
Cork -	11·1	16·2	12·3	17·5	Londonderry	8·9	19·6	12·5	26·7
Drogheda	8·5	16·9	12·7	21·1	Lurgan -	30·8	10·3	15·4	15·4
Dublin -	20·2	20·5	17·0	17·7	Newry -	7·0	10·5	10·5	10·5
Dundalk -	4·4	8·7	13·1	4·4	Sligo -	19·2	0·0	33·7	4·8
Galway -	43·7	26·9	16·8	3·4	Waterford -	13·9	11·6	13·9	9·3
Kilkenny	25·4	12·7	25·4	25·4	Wexford -	17·1	25·7	17·1	4·3

In the week ending Saturday, July 19, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 17·9), was equal to an average annual death-rate of 18·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·3 per 1,000. In Glasgow the rate was 18·8, and in Edinburgh it was 16·7.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 18·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·8 per 1,000, the rates varying from 0·0 in eleven of the districts to 16·8 in Galway—the 13 deaths from all causes registered in that district comprising 4 from measles and 1 from typhus. Among the 99 deaths from all causes registered in Belfast are 1 from measles, 1 from scarlatina, 2 from whooping-cough, 1 from diphtheria, 2 from enteric fever, and 4 from diarrhœa.

In the Dublin Registration District the births registered amounted to 174—104 boys and 70 girls; and the deaths to 140—73 males and 67 females.

The deaths, which are 15 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·7 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 20·2 per 1,000. During the first twenty-nine weeks of the current year the death-rate averaged 29·0, and was 0·6 under the mean rate in the corresponding period of the last ten years, 1880–89.

Only 14 deaths from zymotic diseases were registered, being 11 below the average for the corresponding week of the last ten years, and 4 under the number for the week ended July 12. They comprise 5 from measles, 3 from whooping-cough, and 4 from enteric fever.

Nine cases of enteric fever were admitted to hospital, being 6 over the admissions for the preceding week, and 1 over the number for the week ended July 5. Eight enteric fever patients were discharged, 2 died, and 34 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

There were only 3 cases of measles, 2 of scarlatina, and 1 of typhus in hospital on Saturday.

The number of deaths from disease of the respiratory system registered during the week is 21, being equal to the average for the corresponding week for the last ten years. but 2 under the number for the week ended July 12. The 21 deaths comprise 13 from bronchitis, 4 from pneumonia or inflammation of the lungs, and 1 from croup.

In the week ending Saturday, July 26, the mortality in twenty-eight large English towns, including London (in which the rate was 16·7), was equal to an average annual death-rate of 17·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·1 per 1,000. In Glasgow the rate was 23·5, and in Edinburgh it was 20·9.

The average annual death-rate in the sixteen principal town districts of Ireland was 18·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in twelve of the districts to 13·4 in Galway—the 8 deaths from all causes registered in that district comprising 3 from measles and 1 from typhus. Among the 94 deaths from all causes registered in Belfast are 1 from measles, 2 from whooping-cough, 4 from enteric fever, and 6 from diarrhœa. The 25 deaths in Cork comprise 2 from typhus.

In the Dublin Registration District the births registered amounted to 148—74 boys and 74 girls; and the deaths to 140—69 males and 71 females.

The deaths, which are 8 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of

20·7 in every 1,000 of the estimated population. Omitting the death of a person admitted into the South Dublin Union Workhouse from without the district, the rate was 20·5 per 1,000. During the first thirty weeks of the current year the death-rate averaged 28·8, and was 0·5 under the mean rate in the corresponding period of the ten years 1880–89.

Only 13 deaths from zymotic diseases were registered, being 9 below the average for the corresponding week of the last ten years, and 1 under the number for the week ended July 19. They comprise 2 from measles, 1 from influenza, 4 from whooping-cough, 1 from senile fever, 1 from diarrhœa, and 1 from dysentery.

Eight cases of enteric fever were admitted to hospital, being 1 under the admissions for the preceding week, but 5 over the number for the week ended July 12. Seven enteric fever patients were discharged, and 35 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

There was no case of measles in hospital on Saturday, and only 3 cases of scarlatina and 2 of typhus remained under treatment.

The number of deaths from diseases of the respiratory system registered is 16, being 3 below the average for the corresponding week of the last ten years, and 5 under the number for the week ended July 19. The 16 deaths comprise 6 from bronchitis, 6 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, August 2, the mortality in twenty-eight large English towns, including London (in which the rate was 19·8), was equal to an average annual death-rate of 19·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·2 per 1,000. In Glasgow the rate was 22·0, and in Edinburgh it was 15·3.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 18·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·1 per 1,000, the rates varying from 0·0 in eleven of the districts to 6·7 in Galway—the 5 deaths from all causes registered in that district comprising 2 more from measles. Among the 117 deaths from all causes registered in Belfast are 1 from scarlatina, 4 from whooping-cough, 2 from diptheria, 2 from enteric fever, and 11 from diarrhœa.

In the Dublin Registration District the births registered amounted to 178—88 boys and 90 girls; and the deaths to 118—51 males and 67 females.

The deaths, which are 33 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 17·4 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 17·0 per 1,000. During the first thirty-one weeks of the current year the death-rate averaged 28·4, and was 0·7 under the mean rate in the corresponding period of the ten years 1880–89.

Fifteen deaths from zymotic diseases were registered, being 2 over the low number for the preceding week, but 11 below the average for the corresponding week of the last ten years. They comprise 5 from measles, 2 from whooping-cough, 2 from enteric fever, and 3 from diarrhœa.

Seven cases of enteric fever were admitted to hospital, being 1 under the admissions for the preceding week. Seven enteric fever patients were discharged, 3 died, and 32 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Only 4 cases of scarlatina and 2 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 18, being 1 over the average for the corresponding week of the last ten years, and 2 above the number for the week ended July 26. The 18 deaths comprise 9 from bronchitis, 5 from pneumonia or inflammation of the lungs, 1 from pleurisy, and 2 from croup.

In the week ending Saturday, August 9, the mortality in twenty-eight large English towns, including London (in which the rate was 19·0), was equal to an average annual death-rate of 19·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·2 per 1,000. In Glasgow the rate was 19·3, and in Edinburgh it was 17.5.

The average annual death-rate in the sixteen principal town districts of Ireland was 17·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in twelve of the districts to 4·3 in Belfast—the 99 deaths from all causes registered in that district comprising 1 from scarlatina, 1 from whooping-cough, 5 from enteric fever, and 12 from diarrhœa. The 27 deaths in Cork comprise 3 from diarrhœa. The 15 deaths in Londonderry comprise 1 from scarlatina and 1 from diarrhœa.

In the Dublin Registration District the births registered amounted to 178—95 boys and 83 girls; and the deaths to 126—65 males and 61 females.

The deaths, which are 37 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 18·6 in every 1,000 of the estimated population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 17·7 per 1,000. During the first thirty-two weeks of the current year the death-rate averaged 28·1, and was 0·8 under the mean rate in the corresponding period of the ten years 1880–89.

Eighteen deaths from zymotic diseases were registered, being 3 over the number for the preceding week, but 10 below the average for the corresponding week of the last ten years. They comprise 1 from measles, 3 from whooping-cough, 2 from enteric fever, and 8 from diarrhœa.

Eleven cases of enteric fever were admitted to hospital, being 4 over the admissions for the preceding week. Five enteric fever patients were discharged, 2 died, and 36 remained under treatment in hospital on Saturday, being 4 over the number in hospital at the close of the preceding week.

One case of measles was admitted to hospital, being the only case under treatment at the close of the week. Four cases of scarlatina and one of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 14, being 7 under the average for the corresponding week of the last ten years, and 4 below the number for the week ended August 2. The 14 deaths comprise 8 from bronchitis and 5 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N. Long.* 6° 15′ *W., for the Month of July,* 1890.

Mean Height of Barometer, - - -	29·895 inches.
Maximal Height of Barometer (on 20th, at 9 a.m.),	30·338 „
Minimal Height of Barometer (on 7th, at 9 p.m.),	29·396 „
Mean Dry-bulb Temperature, - - -	57·8°.
Mean Wet-bulb Temperature, - - -	54·6°.
Mean Dew-point Temperature, - - -	51·7°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·385 inch.
Mean Humidity, - - - - -	80·4 per cent.
Highest Temperature in Shade (on 13th), - -	72·8°.
Lowest Temperature in Shade (on 5th), - -	44·4°.
Lowest Temperature on Grass (Radiation) (on 5th and 10th),	41·0°.
Mean Amount of Cloud, - - - -	65·4 per cent
Rainfall (on 24 days), - - - -	2·174 inches
Greatest Daily Rainfall (on 25th), - - -	·376 inch.
General Directions of Wind, - - -	W., S.W., N.W.

Remarks.

A very unsettled, squally, showery, cool month, with a great preponderance of south-westerly to north-westerly winds—a very common state of things in an Irish July.

In Dublin the mean temperature (58·1°) was decidedly below the average (60·6°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 57·8°. In the twenty-five years ending with 1889, July was coldest in 1879 (the "cold year") (M. T. = 57·2°). It was warmest in 1887 (M. T. = 63·7°), and in 1868 (the "warm year") (M. T. = 63·5°). In 1886, the M. T. was 61·0°; in 1888 it was as low as 57·3°; in 1889, it was 58·7°. From this, 1887 proves to have been the warmest since the present records commenced, whilst July, 1888, was almost the coldest.

The mean height of the barometer was 29·895 inches, or 0·020 inch below the corrected average value for July—namely, 29·915 inches. The mercury marked 30·338 inches at 9 a.m. of the 20th, and fell to 29·396 inches at 9 p.m. of the 7th. The observed range of atmospherical pressure was, therefore, 0·942 inches—that is, a little less than an inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 57·8°, or 0·4° above the value for June, 1890. Using the formula, *Mean Temp.=min.* + (*max.—min.* × ·465), the value was 57·7°, or 2·5° below the average mean temperature for July, calculated in the same way, in the twenty-five years, 1865–89, inclusive (60·2°). The arithmetical mean of the maximal and minimal readings was 58·1°, compared with a twenty-five years' average of 60·6°. On the 13th, the thermometer in the screen rose to 72·8°—wind W.S.W.; on the 5th the temperature fell to 44·4°—wind, N. The minimum on the grass was 41·0° on the latter date, and also on the 10th. The rainfall was 2·174 inches, distributed over 24 days. The average rainfall for July in the twenty-five years, 1865–89, inclusive, was 2·420 inches, and the average number of rainy days was 17·2. The rainfall therefore, was somewhat below the average, while the rainy days were much above it. In 1880 the rainfall in July was very large—6·087 inches on 24 days; in 1871 also 4·391 inches fell on 28 days. On the other hand, in 1870, only ·539 of an inch was measured on 8 days; in 1869, the fall was only ·739 of an inch on 9 days, and in 1868, only ·741 of an inch fell on but 5 days.

High winds were noted on many days, but attained the force of a moderate gale on only two occasions—viz., the 14th and 23rd. Temperature reached or exceeded 70° in the screen on only 4 days. In July, 1887, temperature reached or exceeded 70° in the screen on no fewer than 17 days. In July, 1888, the maximum was 68·7°.

At the beginning of the month the weather was, if possible, more broken, cold and showery than in the previous few weeks. Heavy showers fell almost daily, the wind blew strongly at times and from more northerly and colder points than of late, the amount of cloud continued large by day; while the nights were often clear and very cold for the season. On Friday, the 4th, an area of low pressure advanced to the English Channel and South of England from W.S.W. It caused gales andheavy rain in the S.E. of England at night, when clear cold weather held in Ireland. The week closed with a rising barometer, a northerly wind, and a clearing sky.

During the week ending Saturday, the 12th, the weather showed no improvement, but rather the reverse. Cloudy skies, very low temperatures, raw north-westerly winds, and frequent rains or showers made up the record of a most unseasonable period. Numerous areas of low pressure, or their subsidiaries, travelled across the west and north-west of Europe—for the most part in a north-easterly direction—keeping the weather in a very unsettled, broken state. On Monday, the 7th, a downpour of rain, exceeding an inch, occurred over the greater part of Scotland, and the Grampians and other heights were covered with snow as in October. Even at Parsonstown in Central Ireland the thermometer sank to 38° in the screen on two consecutive nights during the week, and in Dublin the mean temperature for the week was 7° below the average. In this city the mean atmospherical pressure was 29·839 inches. The corrected mean temperature was 54·2°; the mean dry bulb temperature at 9 a.m. and 9 p.m was 54·5°. Rain was measured on six days, the total quantity being ·448 inch.

The weather of the week ending Saturday, the 19th, was generally warmer and finer, although far from settled, especially in the south of England where severe thunderstorms occurred on Thursday, the 17th, accompanied by torrents of rain. On the whole, the barometer remained—as in past weeks—low over the North of Europe, and several subsidiary depressions travelled across France and England, causing the electrical disturbances just mentioned. In Dublin a short spell of summer heat occurred on Sunday, when the thermometer rose to 72·8° in the screen. Early next morning the wind rose to a fresh gale from S.W., and this was followed in turn by heavy showers on the afternoons of both Monday and Tuesday. Temperature was at this time rising fast on the Continent, so that on Thursday readings of 84° were recorded in Paris, Berlin, and Brussels, while 89° was touched at Lyons. In the evening violent thunderstorms raged over the North of France, the South of England, and Belgium—1·79 inches of rain fell during the storm in London, 1·01 inches at Cambridge, and 1·02 inches in Paris. This day was very fine in Dublin. In Dublin the mean barometer was 29·891 inches, the mean temperature was 58·4°, the mean dry bulb readings at 9 a.m. and 9 p.m. being 58·2°. The screened thermometers rose to 72·8° on Sunday—the maximum of the month. Rain was recorded on five days, the total measurement being ·487 inch.

Although far from settled, the weather of the week ended Saturday, the 26th, was finer and warmer than for many weeks past. The barometer was throughout high off the S.W. and S. of Ireland, while several extensive areas of low pressure travelled eastwards across Northern Europe. Hence strong N.W. and W. winds prevailed almost daily. After a moderate rainfall on Sunday evening three blustering, but chiefly dry, days followed. Thursday was very fine, but in the evening dense sprays of cirrus cloud shot up across the sky from W., ushering in a depression, with unsettled weather which lasted to the close of the week. In Dublin the mean height of the barometer was 30·101 inches, pressure ranging from 30·338 inches at 9 a.m. of Sunday (wind, N.W.) to 29·830 inches, at 9 a.m. of Saturday (wind, W.S.W.). The corrected mean temperature was 61·3°; the mean dry bulb temperature at 9 a.m. and 9 p.m. being 60·9°. Rain was registered on four days, the total measurement being ·520 inch, of which ·376 inch was entered to Friday.

The last five days were changeable and showery.

The rainfall in Dublin during the seven months ending July 31st has amounted to 15·587 inches on 118 days, compared with 13·146 inches on 112 days during the same period in 1889, 15·994 inches on 109 days in 1888, 7·935 inches on 80 days in 1887, and a 25 years' average of 14·733 inches on 112·6 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in July, was 1·489 inches, distributed over 18 days. Of this quantity ·260 inch fell on the 7th, and ·210 inch on the 31st.

COMPARATIVE VALUE OF ANTIPYRIN, ANTIFEBRIN, AND PHENACETIN.

SURGEON-MAJOR A. CROMBIE, M.D., sums up (*Practitioner*, Oct., 1889):—As regards efficacy, antipyrin comes first, and there is little to choose between antifebrin and phenacetin in the doses in which I have prescribed them. As regards safety, the advantage lies with phenacetin, antifebrin next, then antipyrin. As regards rapidity of action, antipyrin, probably on account of its solubility, comes first, antifebrin second, phenacetin third. As regards the duration of effect, the advantage lies with phenacetin. As regards certainty of action, I would quote them in the same order as that of rapidity—antipyrin, antifebrin, phenacetin. If you have chiefly in your mind caution and the avoidance of any chance of collapse, you will probably find that phenacetin will answer your purpose best. If, on the other hand, you think the case requires prompt interference, you will probably prefer antifebrin. Phenacetin has a soothing and soporific effect, so that in cases of slight feverishness, accompanied by insomnia and great restlessness, small doses of three or four grains of phenacetin will, without perceptible diaphoresis, insure sleepful night with no headache in the morning.

PERISCOPE.

A HUNTERIAN MS.

Dr. Finlayson gives (*Glasgow Medical Journal*, April, 1890) an interesting account of an MS. Volume by William Clift relating to John Hunter's Household and Estates, and to Sir Everard Home's Publications. Photo-zincographs and numerous extracts are given. The amount of Hunter's expenses for museum and house are prodigious. There were never less than fifty persons daily provided for at Hunter's expense, and alterations of a house held on a twenty-year lease costing £6,000 are recorded. The MS., which turned up, strange to say, in Sierra Leone, gives an interesting picture of Hunter's household arrangements.

EFFECT OF IDLENESS ON CONVICTS.

It appears that a law was passed by the New York State Legislature in 1888, in the interests, as we understand, of free labour outside the prisons, prohibiting the usual industrial employments in the State jails. The prison superintendent reports that enforced idleness has had disastrous results—an increase of insanity, increased mortality, shattered *morale*, and diminished earnings. The inmates of the three State prisons in 1888 numbered 3,480, of whom 219 were insane—6·3 per cent. It is said that when it became known at Sing-Sing prison that there was to be a modified re-introduction of work "a shout of joy went up from the convicts."

PHYSICKING IN THE GOOD OLD TIMES.

We quote (at third hand) some particulars of a case in which one Mr. Samuel Jessop, of Heckington, was sued at Lincoln Assizes for the amount of an apothecary's bill, which occupied fifty-five closely-written columns. In twenty-one years—1794–1816—Mr. Jessop swallowed 226,934 pills, an average of 10,806 per annum, or 29 per diem. In the last five years of the period his daily allowance of pills was 78; in 1814 he took 51,590. He washed down his pills with 40,000 bottles of mixtures, and had juleps and electuaries besides. He lived to the age of sixty-five.

PROPER NAMES IN MEDICAL NOMENCLATURE.

The degree at which this nosological nuisance has arrived may be estimated by a list, given by the *Alienist and Neurologist*, of *fifty-four* diseases, or symptoms, in neurological literature alone, named after discoverers or describers. The list is alphabetical, beginning with "Aran-

Duchenne's disease" (progressive muscular atrophy), and ending with "Westphal's sign" (abolition of patellar reflex). That this cumbrous and unscientific nomenclature is unnecessary is shown by the addition to each name of the correct pathological designation.

BRITISH MEDICAL SERVICE.

The following is a list of surgeons on probation of the Medical Staff of the British Army who were successful at both the London and Netley examinations. The prizes are awarded for marks gained in the special subjects taught at the Army Medical School. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown in the list which follows:—

July 31st, 1890.

	Combined Marks		Combined Marks
1. Smithson, A. E. .	5,302	6. Jackson, R. W. H. .	5,008
2. Whiston, P. H. .	5,249	7. Mawhinny, R. J. W.	4,810
3. McLoughlin, G. S. .	5,243	8. Bray, G. A. T. .	4,800
4. Parry, H. J. . .	5,117	9. Forde, B. . .	4,785
5. Beveridge, W. W. O.	5,113	10. Ferguson, J. D. .	4,683
[a] Fred. Smith . . *1st Cl. Staff Sergeant, M.S.C.*	2,803 (*Netley marks only*)		

ACTION OF CORROSIVE SUBLIMATE ON PIPES.

Dr. Maylard, in an interesting article (*Glasgow Medical Journal*, March, 1890), points out the action of solutions of bichloride of mercury on waste pipes in hospitals, &c. Lead and brass pipes are most acted upon; but iron pipes, even when coated, are gradually eaten away. Lead pipes generally split close to the line of solder.

DITHIO-SALICYLIC ACID.

Dr. H. Baum, of Frankfort-on-Main, recommends sodium dithio-salicylate in rheumatic fever. In mild cases he finds three-grain doses, morning and evening, sufficient; the dose may be repeated every three or four hours in severe cases.

AXILLARY BREASTS.

Dr. J. H. Darcy (*Montreal Medical Journal*, April, 1890) reports the case of a woman who had a supernumerary breast in each armpit. They were about the size of a medium-sized lemon, "with a distinct areola, but no nipple." There was no connection whatever between the normal breasts and the axillary ones. Near the end of her pregnancy the supernumerary breasts would increase in size, and cause her great distress and discomfort by pressing on the nerves and veins of the axilla. "The only way she could get any rest at all at nights was to lie flat on her back with the arms stretched away from the sides." During lactation they secreted very freely.

---

[a] Gained the Herbert Prize of £20, with the Montefiore second Prize.

DEATH FOLLOWING AN ATTEMPT AT RAPE.

Dr. A. S. Underhill (*Birmingham Medical Review*) gives the particulars of a case in which death followed on an attempt to commit a rape on a girl fourteen years of age. "The fourchette had been torn, the hymen was sickle-shaped, abnormally tough and unruptured, but there was no evidence of penetration." She died three weeks from the date of the attempted violence.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Therapeutical Novelties.

Mr. John Evans, of 49 Dawson-street, Dublin, to whose pharmaceutical skill our pages have more than once borne witness, has again submitted a number of new preparations for our opinion.

The first of these is a solution of dandelion (*Taraxacum Dens-Leonis*, or *Leontodon Taraxacum*), so prepared that the heat required for evaporation to the consistency of the official extracts of the drug is avoided, and so all risk of decomposition is excluded. This concentrated solution is of such strength that two tablespoonfuls contain the entire active principles of two ounces of the root, and are consequently equivalent to half a pint of the decoction, prepared according to the formula of the old Dublin Pharmacopœia, or to *two pints* of the decoction of the British Pharmacopœia. The preparation so made is stated to be very stable, portable, and pleasant to take. The dose is a teaspoonful to a tablespoonful in a glass of water two or three times a day.

Two new preparations of cocaïn are the "Cocaine Chocolate" lozenges—a remedy for sea-sickness, and the "Cocaïne Pastilles," intended for sore throat, loss of voice, laryngeal irritation, and hoarseness.

"Evans' Heartburn or Absorbent-Lozenge" is an agreeable remedy. It seems to contain bismuth.

The other preparations are older friends—namely, pure extract of malt, colourless tincture of iodine (tincture of iodine, carbolic acid and glycerine—is this not really a solution of carbolate of iodine?), Evans' "Black-Drop," and rennet powder.

We are glad that a Dublin firm is so active and able to compete with the very best and most renowned pharmaceutical establishments elsewhere.

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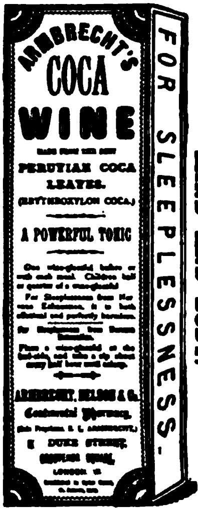

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PART I.

ORIGINAL COMMUNICATIONS.

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ART. XI.—*A Remarkable Case of Intestinal Obstruction.*[a] By WALLACE BEATTY, M.D. Univ. Dubl.; F.R.C.P.I.; Senior Assistant-Physician to the Adelaide Hospital.

WHEN a case of intestinal obstruction comes before one, it is often extremely difficult, at times impossible, to arrive at certainty in the diagnosis of the nature of the obstruction, as the group of symptoms which is present may not point with certainty to one special form. The case I am about to relate is one of these obscure cases, and even when it terminated—as it did, fortunately—in recovery, and one could look back calmly upon its symptoms and course, it was scarcely possible to do more than conjecture as to its nature:—

CASE.—H. S., a boy aged ten, came under my care on January 16th, 1889. The history of his case is as follows:—He had always been a healthy boy, and, except for an occasional attack of diarrhœa of only a few hours' duration, he had never any illness. His bowels usually acted twice every day when he was in perfect health.

The present illness began on the night of Sunday, January 13th; during the day he was quite well, but at night he was attacked by pain in the abdomen, rather severe but not agonising. On Monday morning, January 14th, he vomited. During that day and the next he had diarrhœa and some vomiting, and the pain continued.

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[a] Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, January 24, 1890. [For the discussion on this paper see Vol. LXXXIX., No. 219, Third Series, page 266.]

When I saw him on the morning of the 16th (*i.e.*, the 4th day) he complained of abdominal pain, felt chiefly but not strictly localised in the right iliac fossa; the abdomen was a little distended and tense. There was some tenderness on pressure in the right iliac fossa. His pulse was 100; his temperature was 99°. His tongue was thinly furred. There had been no hæmorrhage from the bowels.

I was uncertain what was wrong with him; he did not look very ill. The suddenness of the attack made me think of intestinal obstruction, and the presence of abdominal pain and tenderness in the right iliac fossa were in favour of typhlitis.

As abdominal pain and tenderness were the chief symptoms, I put him on 4 minims of Battley every 4 hours. In the evening his temperature was 100°; his pulse 104. The opium had given him considerable relief. The vomiting had ceased.

The next day, January 17th (*i.e.*, 5th day), there was still some distension of the abdomen and some diarrhœa, but he was apparently better—he had scarcely any pain, no vomiting; his temperature was normal both in the morning and in the evening, and his pulse was between 80 and 90. Though I gave a guarded opinion I hoped that the symptoms were subsiding. The treatment was continuance of the Battley, and 1 grain of calomel with 2 grains of Dover's powder. He was ordered whey and Brand's essence.

On January 18th (*i.e.*, 6th day) there was still some distension of the abdomen, the tongue was furred, he had diarrhœa, the motions were liquid and were somewhat like those seen in typhoid fever—viz., pea-soupy. The morning temperature was 99·6°; the evening temperature was 100°. The pulse both in the morning and in the evening was 84. As there was still tenderness in the right iliac fossa I applied there two leeches.

On January 19th (*i.e.*, 7th day) his condition was much the same as it was on the previous day. His abdomen was still tense; there was tenderness in the right iliac fossa; the temperature was raised, reaching 101° in the evening; the bowels were still acting too freely, having moved three times during the previous night.

I continued the opium, and applied cold compresses to the right iliac fossa.

On January 20th (*i.e.*, 8th day) the abdomen was still somewhat swollen and tense. There was some distension in the epigastric region—any tenderness there was very slight. The morning temperature was 99·4°; the evening temperature was 100°. The morning pulse was 100; the evening pulse was 84.

On January 21st (*i.e.*, 9th day) he had a large lumpy motion—the lumps were not hard. The abdomen was softer in the morning, but in the evening became again rather distended. The morning temperature was 98·6°; the evening temperature was 100°. The pulse was 80 in the morning, 76 in the evening.

My note, taken on January 26th (*i.e.*, 14th day) is as follows:—"Since last note on January 21st his condition has been improving. He has for the last few days been looking better, and said he felt quite well; still his tongue, though it began to clean from the tip a few days ago, is now furred, and the tip is again coated. His temperature is still slightly raised towards the evening, and his belly is still somewhat tense, though less so than before.

"Yesterday, January 25th (*i.e.*, 13th day), I detected some hardness in the right iliac fossa—no distinct well-defined tumour. A few days ago I gave an enema of castor-oil and water, and repeated it the next day; no fæcal lumps of any size came away. Yesterday I had a florin-sized blister applied to the right iliac fossa. At midday his temperature was 100·2." I thought the disease was typhlitis.

On January 27th (*i.e.*, 15th day) his abdomen was much flatter, but there was still some tension—much less, however, than before. The bowels had moved during the night—two or three long cylindrical masses came away, perfectly natural in form, but a little pale in colour. In the morning a motion was passed containing small curds (*i.e.*, some milk undigested). The morning temperature was 99·4°.

On January 28th (*i.e.*, 16th day) Dr. Head saw him with me. He considered the case an obscure one, but inclined to the view of there being some inflammatory mischief in the region of the cæcum.

On January 31st (*i.e.*, 19th day) my note was—"Since the 27th no change occurred until to-day. Every day I hoped that the belly would lose its tympany, and that the moderate fever would abate. The temperature has varied from 99·5–100° in the morning to about 101° at night for the last two or three days. On this morning a change in the symptoms occurred; he began to vomit, and got very severe pain in the abdomen. During the day the bowels moved twice—on each occasion a normal cylindrical motion was passed. The pain became so severe to-day that I gave 8 minims of Battley at each dose instead of 4; I also gave 2 grains of calomel with ½ grain pulv. opii. at bedtime."

On February 1st (*i.e.*, 20th day) he vomited everything, even water. There was no action from the bowels. At 3 p.m. Dr. Head saw him with me. The abdomen was distended, chiefly in the region of the umbilicus. Pain came on in severe paroxysms; during these paroxysms the peristalsis of the intestines was visible on the surface of the abdomen. The boy looked very ill; a marked change had occurred in his aspect compared with what it was two days before. It was clear he had intestinal obstruction of some kind. The treatment adopted was—all food by the mouth was stopped; he was given nutritive enemata. To relieve the pain he was given ⅐th grain morphia hypodermically, with a little atropia. (The hypodermic solution I used on this day and subsequently contained in each 5 minims $\frac{1}{4}$ grain sulphate of morphia, $\frac{1}{100}$ grain sulphate of atropia.)

In the evening Sir William Stokes saw the boy with me. We considered whether the intestinal obstruction could be relieved by operation; we decided in the negative, because we believed that the cause of the obstruction was paralysis. We gave him 2 grains of calomel with $\frac{1}{2}$ grain pulv. opii. From this time until the termination of the illness I had the valuable and kind assistance each day of Sir William Stokes.

On February 5th (*i.e.*, 24th day), the note taken was—"The history since February 1st is briefly this:—He has been taking by the mouth since February 2nd peptonised milk in wineglassfuls. Ten minims of tincture of belladonna were given every four hours, and nutrient suppositories were used. Twice or three times in the day he has been given morphia hypodermically, and laudanum on lint under a poultice was kept constantly on the abdomen. The abdomen until to-day was not universally swollen, the swelling being situated chiefly in the region of the umbilicus. To-day the abdomen is very much distended. After purgative enemata some brown fluid came away a few times from the bowels—not true fæces. Yesterday (February 4th) he passed a good deal of wind per rectum. When the effect of the morphia passed off the pain and inclination to sickness, and sometimes vomiting of green bile, occurred. Treatment—The belladonna by the mouth was stopped, and four grains of calomel were given February 6th (*i.e.*, 25th day). No motion followed the calomel. The abdomen was very greatly and universally distended. The superficial abdominal veins were prominent. He did not pass much water during the previous twenty-four hours. The urine was pale. He vomited green bile during the previous night. Tongue was coated. The temperature during the previous few days was normal or subnormal; the pulse was variable, occasionally its frequency was 56 or 60, more often it was between 70 and 80, and sometimes it reached 90. An injection was given with the long tube; some solid and fluid fæces came away, but in small quantity; the solid matter was soft. After the injection there was no appreciable change in the contour of the abdomen, it was still very tightly distended. During the day morphia had to be given hypodermically three times. A second purgative enema was given in the evening; this was not successful. The urine that day was tested for indican with negative result; the colour of the urine was pale yellow."

On February 7th (*i.e.*, 26th day) the belly was still very tightly distended. The temperature in the morning was 97·8°, and the pulse was 88. He was given, by Sir William Stokes, a large enema of ox gall, soap, and water. The long tube was used, and was passed up about 18 inches. The enema brought away nothing.

From February 7th to February 16th his condition was as follows:— The abdomen became, if possible, more and more swollen each day. The superficial abdominal veins were much distended, and the left superficial epigastric artery pulsated strongly. The temperature was subnormal all along. The pulse was variable; when the vomiting ceased for a time the pulse improved. Vomiting of green bile occurred on and off; during February 14, 15, and 16, there was no vomiting. His sufferings were very great each time the effect of the morphia hypodermics had passed off. The pain increased each day in severity, and was, as before, paroxysmal, and attended with visible peristalsis. A little wind passed per rectum on the 13th of February, after a large injection had been given, and a little solid fæces; in spite of this the abdomen remained enormously distended. On February 14th electricity was tried, without any result. On February 15th, after a large purgative injection, a few fæcal particles, but no wind, came away. On February 14th we observed superficial marginal ulceration of the lower part of the left cornea, with some whitish infiltration, and a somewhat similar, though less marked, condition in the right eye; for some days previously his eyes had been bloodshot. On February 15th Mr. Swanzy saw the boy in consultation with Sir William Stokes and me. His opinion was that the marginal ulceration in each cornea was due to the boy lying with his eyes half open, and never closing them completely, even when asleep. He recommended that they should be covered with boric acid ointment on lint. The boy had been keeping down a fair amount of nourishment during February 14, 15, and 16—viz., about one pint of peptonised milk, the yolks of three eggs, a little chicken broth, and beef-tea; in addition, he was still getting nutrient suppositories. He was in a sad, hideously emaciated, condition. It was pitiful to see the haggard face, sunken cheeks, the bloodshot eyes, and the look of extreme suffering, when he was not under the influence of morphia. It was marvellous that he had the strength to get out of bed each time he wanted to pass water, or to attempt to evacuate his bowels.

On February 16th (*i.e.*, 35th day) he required 1¼ grains of morphia hypodermically in the twenty-four hours. The pulse on this day was about 112.

His condition from February 16th up to February 23rd was—the pulse was becoming more frequent and weaker; on the night of February 22nd it was almost thready. I thought the boy was sinking. The next day the pulse improved. On two occasions each time after a large injection (containing turpentine, castor-oil and ox gall), a very little wind and a few fæcal particles came away. No difference, however, was observed in the distension of the abdomen. He still could get up strongly to pass water; sometimes he could not succeed in passing it.

On February 23rd (*i.e.*, 42nd day) the distension of the abdomen was so extreme, and the distress occasioned thereby so great, that Sir

William Stokes passed a trochar and canula into a projecting coil of the bowel, a little above the umbilicus. A good deal of gas escaped and the belly became softer. After the aspiration he went to sleep for a time.

On February 24th (43rd day) the pulse was decidedly stronger. The abdomen was not so extremely tense as it had been before the aspiration. Sir William Stokes examined the rectum with his finger; the bowels were felt pressing on the rectum. During the night 2 grains of morphia were given hypodermically; during the day 1½ grains—*i.e.*, 3½ grains in the twenty-four hours.

On February 28th (*i.e.*, 47th day), as percussion revealed dulness at the left side of the abdomen, a hypodermic needle was introduced at the upper part of the left iliac fossa; it evidently entered the bowel, as fluid fæces were withdrawn. We thought that possibly the dull note might indicate a collection of matter, but the puncture showed that it was due to intestines loaded with fluid fæces.

On March 2nd (*i.e.*, 49th day) the note taken was—"During the night there was much retching. The pulse was very thready. I wonder he did not die. The abdomen is very tense."

Two aspirations were made by Sir William Stokes on that day. Much gas escaped, and considerable temporary relief was experienced.

March 3rd (*i.e.*, 50th day) was a very eventful day. In the morning Sir William Stokes and I met. Hope, which each day had been becoming fainter and fainter, we had to abandon. The boy was apparently dying; his hands were cold; his pupils dilated; he was quite apathetic; he did not answer questions; his breathing was very slow; at one time only four respirations in a minute—in fact, he looked like death. To do anything—*e.g.*, to make one more trial with an enema, was out of the question; it appeared as if, at any moment, he would breathe his last. At 1 30 p.m. I saw him again. He still lived, but there was no change. I wondered that he still clung to life, but felt sure that before night the final breath would come. At 5 30 p.m. a car was driven hurriedly to my door; the boy's father jumped off, exclaiming, "He has had a motion!" In a few minutes I saw him. Wonderful to relate, he had passed a copious fæculent motion, and his pulse had improved greatly. Sir William Stokes was summoned. We gave an enema of turpentine and oil, and fæculent fluid came away; there were a few soft fæcal lumps. The pulse was 100.

During the night of March 3rd he passed an immense quantity of semi-fluid fæces—in all more than seven pints (seven pints were measured). At 4 a.m. on March 4th he was given his last morphia hypodermic. Sir William Stokes and I agreed to stop the morphia. During March 4th several motions were passed. The belly had become soft. The pulse was about 90 to 100; his temperature was normal. In the evening he became delirious; one time he fancied he was going to Ball's-bridge; at another that he was shooting his mother.

On March 5th he would not speak. He grunted like a fog-horn! In the evening he spoke single words—*e.g.*, "hang," "hurt," "more" (this last when he had just been given beef-tea). He bit his mother when she stooped to kiss him. At night there was some diarrhœa; the abdomen was soft; nothing abnormal could be discovered; no tumour. The pulse was regular and of good volume. Treatment—Peptonised milk, beef-tea, Valentine's meat juice, a little champagne. Though his pulse was good, he was physically very weak, could scarcely move a limb.

My note on March 12th was—"He has been getting on well; his bowels act freely, and he takes his nourishment well; his diet consists of peptonised milk, eggs, coffee and milk, gruel, and a little fish for the past two days. The tongue is nearly clean, but he is still delirious, and every now and then there is visible peristalsis of the intestines."

The delirium ceased on March 15th. During the previous week he had gained in flesh, and was each day looking better. At 8 p.m. on March 16th his condition became again alarming. He began to suffer from severe abdominal pain, coming on in paroxysms, and there was visible peristalsis; this pain lasted for two days severely; while the severe pain continued there was no motion passed. An enema given on March 18th acted; after this the severe pain ceased, and in a few days the pain entirely went away.

He made an excellent recovery, and got fat and strong. Since this illness he has enjoyed excellent health, except on one occasion, in August last, when he had an attack of diarrhœa and vomiting; the attack began at midnight. The day before he had eaten for breakfast two eggs and lobster, and during the day had fatigued himself; he ate a lot of chocolate during the day. I saw him in the afternoon of the following day; his temperature was normal; his pulse quiet, his tongue clean, and there was nothing abdominal discovered; in a couple of days he was quite well.

In reviewing this case it will conduce to a clearer understanding of all its bearings if we consider three periods:—1. The period from the boy's birth to the commencement of his illness. 2. The illness itself. 3. The period from the illness up to the present time.

With regard to the first period there is not much to record. He had enjoyed excellent health. The only points of importance are—1. Occasionally he had an attack of diarrhœa. 2. His bowels were almost always moved twice each day when in perfect health. So a rather too active intestinal peristalsis is the only noteworthy point in his past history.

With regard to the second period—viz., the illness itself—it may be divided into two stages: the first stage from January 13 to January 31 (*i.e.*, having a duration of 19 days); the second stage from January 31 to March 3 (*i.e.*, having a duration of 32 days).

The symptoms during the first stage may be summarised thus—

A sudden commencement—the first symptom being abdominal pain, followed by diarrhœa, and in about twelve hours by vomiting. The symptoms during the first four days were not very urgent, as no medical aid was sought until the fourth day. His condition then was abdominal pain of moderate severity, tenderness on pressure in the right iliac fossa, some tension of the abdominal walls, a temperature of 99°, a rather weak pulse, and a thinly furred tongue.

From the 4th day till the 19th—*i.e.*, until the termination of the first stage, his condition was—

1. Some diarrhœa; the motions were sometimes liquid, sometimes formed, never scybalous.
2. Some fulness and tension of the abdominal walls; this was not at all great, and seemed to lessen each day.
3. Slight tenderness in the right iliac fossa.
4. Moderate fever, the highest temperature reached being 101°.
5. A small, indistinctly-felt tumour in the right iliac fossa, present at the end of this stage; and—
6. No vomiting. Most of this time the boy felt very well and hungry, and was disappointed at being kept on low diet.

The treatment during this stage was a restricted liquid diet, a few drops of Battley's solution every three or four hours, leeches and wet compresses to the right iliac fossa.

The symptoms during the second stage were—a sudden change in the boy's condition, this change consisting in paroxysms of severe abdominal pain, vomiting, distension of the abdomen, and obstinate constipation. From the commencement of this stage until it terminated the symptoms were briefly as follows:—

1. Rapidly increasing distension of the abdomen, commencing in the umbilical region, and subsequently involving the whole abdomen.
2. Paroxysms of abdominal pain, becoming each day more and more agonising, and subdued only by repeated hypodermic injections of morphia.
3. Vomiting frequent, but fluctuating, not constant, bilious, only once or twice fæculent.

4. Obstruction of the bowels almost complete. On only a few occasions some wind and a scanty amount of fæces came away, without giving any relief.

5. Rapidly-increasing emaciation, which became finally extreme.

6. A normal or subnormal temperature.

7. A pulse of fair volume during the greater part of the time, and of moderate frequency—*i.e.*, under 100. Until towards the termination of this stage it was never extremely rapid.

8. At times difficulty in micturition, and more or less tenesmus.

9. A sudden relief to the obstruction, occurring when the boy was almost dead.

With regard to the third period (*i.e.*, from the termination of the illness until the present), there are two events to record—the attack of paroxysmal abdominal pain which occurred during convalescence from his illness, and the attack of diarrhœa and vomiting which occurred some months after, and lasted about two days.

On reviewing the case, I think the diagnosis rests between—

(*a*). An intussusception.

(*b*). Typhlitis leading to obstruction by producing local paralysis.

The question of intussusception is one deserving of some consideration. There are, undoubtedly, some points in the case which favour this diagnosis—

1. The suddenness of the onset.

2. The first symptom being sudden pain.

3. The presence of diarrhœa during the first part of the illness, which in intestinal obstruction is suggestive of intussusception.

4. The moderate distension of the abdomen for several days.

5. The fact that an indistinct tumour was felt in the right iliac fossa for a couple of days.

6. The change in the symptoms on the 19th day may have been due to an increase in the invagination leading to obstruction.

7. The sudden relief may have been due to spontaneous reduction of the invaginated bowel, the other method of spontaneous cure being excluded by the fact that no portion of gangrenous intestine was subsequently discharged.

The chief difficulties which lie in the way of the acceptance of this diagnosis are:—

1. The early fever. Still, in some cases of intussusception fever has been noted. Treves, in his excellent Manual on Intestinal Obstruction, when speaking of the temperature in intussusception, says:—"It will be below normal in cases associated with shock.

In the majority of the cases, and especially in such as are subacute, it is normal, or a little above normal. It is important" (he continues) "to recognise the fact that there may be a rise of temperature in intussusception apart from any evidence of local peritonitis. As a good illustration of this may be cited a case recorded by Dr. Eastes. It concerned a little girl aged eleven. On the seventh and eighth day of the symptoms the temperature reached 101·3°. On the evening of the eighth day the invagination was reduced by means of forced enemata. On the ninth day the temperature was 97·6°."

2. The early local tenderness in the right iliac fossa.

3. The absence of bloody stools.

4. The long duration of the illness, which would be greatly against the possibility of spontaneous reduction, as it would be very unlikely that adhesions would not have formed precluding the possibility of such reduction.

How is the attack of pain with visible peristalsis, which occurred during convalescence, to be explained if we assume that the illness was due to intussusception? Perhaps it was due to a fresh invagination which reduced itself, or perhaps to a temporary obstruction due to a weakened condition of that part of the bowel which had been invaginated.

The question of typhlitis remains to be considered. During the first stage of the illness I believed that the case was one of typhlitis, on account of the early tenderness on pressure in the right iliac fossa, the abdominal tension, the fever, and the presence, after some days, of a small tumour in the situation of the cæcum. The sudden onset is quite compatible with typhlitis, as it usually begins suddenly.

The sudden intestinal obstruction which occurred on the 19th day would be accounted for by paralysis of the cæcum, due to the inflammation. This is, I think, Sir William Stokes' view; and, taking all the symptoms into consideration, it seems to me to be the true explanation of the case. But there are, no doubt, some difficulties in the way of accepting this view.

1. Why was diarrhœa present during the early part of the illness? Constipation is the rule in typhlitis.

2. How did the obstruction give way? Perhaps it was that on the approach of death a general relaxation of the intestines took place, and so the accumulated contents of the cæcam made their way out.

3. If the typhlitis was severe enough to produce paralysis of the cæcum, is it not strange that the inflammation did not spread to the cellular tissue behind the cæcum and lead to perityphlitis and abscess? There was no evidence of suppuration either during or after the illness.

Before concluding my paper I should like to allude to the marginal ulceration of the cornea, which took place during the latter part of the illness. When Mr. Swanzy saw the boy the ulceration was present only at the lower part of each cornea. His explanation was that the ulceration was due to constant exposure, as the eyes were never completely closed, even during sleep, and so the lower part of each cornea was uncovered. Some days after Mr. Swanzy had seen the boy a marginal ulcer occurred at the upper part of one cornea. How is this to be explained? Could not the ulceration have been due, as Sir William Stokes and I thought at first, to the miserable state of malnutrition in which the boy was?[a]

In conclusion, I only wish to say that I have ventured to occupy a very considerable time in relating this case, because I think it is one that is remarkable in many ways:—The early fever; then the sudden cessation of fever; the early diarrhœa; the sudden constipation; the long duration of the case; the sudden relief when the boy was at the gate of death; the mental clearness before relief came; the delirium afterwards; the wonderful strength the boy showed in getting up while the obstruction lasted; the extreme physical weakness afterwards. This may in part have been due to the sudden withdrawal of the morphia.

Lastly, when observers of such long experience as Dr. Head and Sir William Stokes agree in considering my patient's case as one of the most remarkable cases they have ever seen, I may be pardoned for bringing it at such great length before the Academy.

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[a] At my request Dr. Swanzy has given me the following note:—"As I did not see the ulcer Dr. Beatty mentions as having formed at the upper margin of one cornea, I am not in a position to offer an explanation for it. It may have been a phlyctenular ulcer. That the affection of the lower part of the cornea which I did see was mainly due to the non-closure of the lids, even during sleep, I still think. In consequence of this non-closure the exposed parts of the corneal epithelium became dry and disorganised, and came away, and in this way the ulceration occurred. The fact that protection of the cornea with an antiseptic dressing was sufficient to arrest and cure the ulceration is proof of the correctness of this view. The cornea of a person in perfect health, similarly exposed, would likewise become ulcerated.—H. R. Swanzy."

ART. XII.—*A Contribution to the Surgery of the Brain.*[a]

By WILLIAM THORNLEY STOKER, Surgeon, and GUY L'ESTRANGE NUGENT and JOSEPH O'CARROLL, Physicians, to the Richmond, Whitworth, and Hardwicke Hospitals, Dublin.

THE two cases about to be recorded are ones respectively of tumour and of abscess in the cerebrum. Although operation in the former yielded but temporary benefit, yet it is of scarcely less interest than the latter, in which operation was attended by complete success. Both have a bearing on the diagnosis, localisation, and treatment of the classes of complaints to which they belong. Our failures in surgery are generally more instructive than our successes, for calamity is a more direct guide to danger than is success. One is positive, the other negative, in its value. The limited measure of success, therefore, which has attended one of these cases offers the stronger reason why they should both be recorded.

The first case is one of tumour in the superior parietal lobule on the right side, which was diagnosticated and operated on without success, the relief being but temporary, and the patient dying three weeks after operation.

The second case is one of abscess in the right temporal lobe, which was diagnosticated and operated on, and the subject of which is now, more than six months after operation, alive and well.

CASE I.—J. B., aged forty-two, a boiler riveter, was admitted into the Richmond Hospital on December 12th, 1888. He was of muscular, vigorous habit, temperate, had not had syphilis, and, until the day of his admission, suffered from no blemish except slight deafness, produced by his noisy occupation. He was a widower with two children, and a man of quiet, regular habits. His father died of phthisis, his mother, probably, of malignant disease of the stomach.

On December 12th he left work at 5 o'clock, p.m., feeling perfectly well. When walking home the lace of his boot became loose; he stooped to fasten it, and when raising himself became giddy. He recovered himself in a few minutes, but his left leg began to jerk, the movements commencing at the instep and gradually extending up the extremity, and engaging the same side of the trunk. He was unable to walk, had to catch the railings to prevent himself from falling, and feared that the passers-by would think he was drunk. He was assisted home, and brought to hospital the same evening.

When admitted he was, and had been, perfectly conscious and intelligent. He was sweating profusely; his pupils were dilated and symmetrical. His left leg was violently jerked by clonic spasms, occurring from 30 to 40 times in the minute, and engaging the extensor muscles on the front of the leg and thigh, and the adductors of the thigh. The limb was extended and rotated outwards. The left side of his trunk was engaged in the spasms to such an extent that he described them as "taking his breath away." The muscles about the left shoulder were affected, but to a much slighter degree. His face was turned to the *right* side. There was complete loss of sensation over the affected parts on the left side. He complained of much pain during the spasms. The knee-jerk was exaggerated on the left side.

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[a] Read before the Section of Surgery in the Royal Academy of Medicine in Ireland on Friday, May 9, 1890. [For the discussion on this paper see page 172.]

His bowels were emptied by an enema, and he was put on large doses of bromide of potassium. After a few hours he was greatly relieved, and the spasms confined themselves to the leg.

December 13th.—Spasms are confined to the muscles on the front of the leg; sensation is completely recovered except on the front of the leg, where it remains slightly impaired. He is distressed by pains in the front of the leg and dorsum of foot; face slightly contracted on the *right* side.

From the time of his admission on December 12th his condition was one of steady improvement. His treatment consisted mainly in frictions to the left lower extremity, with a diluted ointment of atropia to relieve his severe pain; in the use of bromide of potassium, and attention to his bowels. His pain lessened; the spasms gradually disappeared in order from above downwards—the shoulder being the first, and lower extremities the last, to recover. The pain and spasm remained in the leg after the thigh had recovered, then in the dorsum of the foot, and lastly in the great toe. He had no ocular symptoms, no headache, but his speech was, probably, a little more slow than it should be.

On December 16th he was able to leave his bed, but could not walk; on December 20th he was able to walk, and on January 8th he insisted on leaving the hospital and resuming his work, although we were anxious to keep him under observation.

The opinion formed of his case at the time was that he had probably a tumour near, or in, the leg centre in the right hemisphere; but the absence of ocular symptoms, of vomiting, and of headache rendered the diagnosis uncertain.

He remained well and at work until April 21st, 1889, when, as he was standing in the street, he was seized by violent clonic spasms of the muscles of the entire of the left side, except those of the face. The attack lasted for an hour, and then passed away. Two hours afterwards he got a second attack, even more violent than the first, and was brought to hospital. His condition was almost similar to that when under observation the previous December, but more pronounced. The differences were that his head was drawn to the left side, and he had severe frontal headache. He did not sleep for two days after his admission, and then only as result of the use of bromide of potassium.

On April 30th, seven days after his admission, he was able to get up, the spasms having diminished in frequency and in degree, and being at this date only present a few times in the day, and confined to the leg. His temperature, when admitted, on April 21st, was 101°; it remained without much rise or fall, between 99° and 100°, until the 28th, when it became normal, and remained so. He was removed to the Whitworth Hospital, under the care of Dr. Nugent, on May 6th, his condition being then as follows:—

His left lower extremity was weak, but he could stand and move with the aid of a chair. He could not move the toes of the left foot. He had numbness of the leg; the plantar reflex was present; the knee-jerk of the left leg was exaggerated. He could flex the leg, but could not retain it in the flexed position. He suffered from giddiness, which disappeared when he had been out of bed for an hour or so.

This state of affairs lasted with little ups and downs, his condition on the whole being an improving one, until May 20th, the only marked inconvenience he suffered being from a severe pain on the inside of the thigh. On May 20th he got another attack of spasm. The movements commenced in the knee and worked up the left side to the head. He complained of great pain over the stomach, and of severe frontal headache; had twitchings of the extensor muscles of the thigh, of the abdominal muscles, the pectorals, and trapezius of left side. No twitchings of arm, face, or tongue.

May 23rd.—Better; twitchings have ceased in trapezius and pectorals; muscles still affected are adductor longus, tensor vaginæ femoris, rectus abdominis, external intercostals—all of left side. Could walk across the ward without assistance; left side weak, he brings muscles of right side into play, and swings left limb in the arc of a circle.

May 24th.—Is much better; movements cease during sleep; had slight clonic spasm of the adductor longus, rectus abdominis, external oblique, external intercostals, and scalenus anticus of left side. The spasms occur about twenty times in the minute; they disappeared in order from above downward, the adductor longus being the last to recover.

From May 24th to June 13th he continued in much the same state—able to be up for the greater part of the day, sleeping well at night, suffering from numbness on the front and outside of leg, occasional giddiness and spasms at times, of a mild character, and of short duration. The spasms always commenced in the foot, extended to the thigh, came on suddenly, were attended by pain and perspiration, lasted from five to ten minutes, and were followed by weakness and numbness in the parts.

June 13th.—Had an attack of spasm in the left leg, which lasted, at intervals, for two hours.

June 20th.—Had an attack of clonic spasm, affecting only the left arm, deltoid, triceps, and trapezius muscles, which lasted off and on until July 2nd. Through July he remained in much the same state, and, on August 1st, had a severe attack of spasm. His arm was jerked at a rapid rate from the elbow up, his head turned to the left side, his eyes open, and he could not speak for several minutes. The attack lasted for over an hour, and was followed by loss of power in the hand and arm, and by severe and constant pain in the shoulder.

August 8th.—Spasms, chiefly engaging the trapezius, deltoid, biceps, and supinator longus.

August 10th.—The loss of power in the hand persisted; all the muscles of the upper extremity responded to electrical stimulus.

August 15th.—The left side of the face was paralysed.

August 19th.—Intellectual powers are failing; the patient does not know what he is speaking about; he cannot return an intelligent answer. His tongue is normal, and protruded straight. He has, for the first time, complete loss of sensation in the arm.

From August 19th his condition was one of rapid deterioration. His patellar reflex was still exaggerated on the 21st. His eyes were examined by Mr. Swanzy on the 23rd, who found no optic neuritis, or evidence of disease. On the 28th he passed urine unconsciously, but had some power of giving notice when the bowels were about to act. He was in a state of semi-consciousness, lying quite helpless, and dead to his surroundings, unless roused. When roused, and asked if he had pain, he put his hand, slowly, to the right side of his head and gave a stupid assent. When loudly and repeatedly desired to put out his tongue, he did so slowly, but in the case of each movement did not attempt to recover himself, leaving his hand at his head in the one case, and allowing his tongue to remain protruded in the other. He swallowed slowly and with difficulty. His temperature was normal, 98.4°; his pulse and heart weak.

The next morning, the 29th of August, he was so much worse that it was evident he would soon die if operation were not undertaken at once, and so we proceeded to trephine the skull and explore the brain.

Previous to operation he was unable to speak, could not swallow, was completely paralysed, both as to motion and sensation on the left side, including the face; his pupils were dilated and symmetrical; he had nystagmus; and could be roused only by great effort to make any response, his extreme of intelligence being to put his right hand to his head when loudly questioned as to the existence of pain; he retained his hand at his head until it was removed from it.

Operation.—As the leg centre was pointed to by the clinical history of the case as the starting point of the disease, its situation was selected for operation. The flap of scalp was cut in a semi-circular fashion, with its convexity corresponding to where the inner edge of the trephine hole would be—the advantages of forming the flap in this fashion being, that it leaves its chief vascular and nervous supplies, which are from below, unimpaired, and that the size of the flap can be indefinitely extended by carrying the incisions downwards towards the ear in case additional apertures in the skull are required. The trephine, 1 inch in diameter, was first applied over the upper part of the fissure of Rolando, as near to its upper end as the safety of the longitudinal sinus would allow. A second trephine opening was made, antero-inferior to the first, in the line of the fissure of Rolando, and the angles of bone being removed with a forceps, an oval opening, 1 inch in diameter and 2 inches in length, was obtained. When the dura mater was incised the brain bulged in the charactesistic fashion seen in cases of great intracranial pressure. No evidence of diseased structure could be seen in the exposed area of brain. The region of the leg centre was then explored both with a probe and a trocar, and as nothing evidencing disease was found the entire motor area was then similarly examined, but without result. The intracranial pressure was so pronounced that when a silver probe was introduced into the brain substance, and left there, it was rapidly extruded by the force exercised by the brain.

It became evident that no good could result from further exploration; so the membranes were replaced, the flap adjusted by points of suture, a rubber drainage-tube passed across its base, and an antiseptic compress applied over all. I did not replace the bone, because it was now evident that the operation could give even temporary relief only by allowing some degree of protrusion so as to relieve the intracranial pressure.

His temperature, which had previously been normal, rose on the evening of operation to 101°, and the next day, August 30th, to 103·5°. It then fell so as to become normal on the third day after operation, and remained so until August 17th, when it began to rise, and by the day of his death, September 19th, had risen to 105·4° It was essentially the same on both sides all through the case.

August 30th.—Speech and intelligence improved; some tonic spasm of right side of face; requires to have a catheter passed; nystagmus continues.

August 31st.—Speech and intelligence much better; passes water easily; takes nourishment freely; complains of great pain in the head; can open and close both eyes symmetrically when the tonic spasm of right side of face is absent.

September 1st.—Drainage tube removed; general condition improved; power returning in left arm. The wound has all united, except the apertures where the drainage tube passed through. The surface of flap raised above surrounding skin by pressure of the brain.

September 2nd.—Tonic spasm of *left* side of face.

His condition from September 2nd to September 8th was one of improvement. He was fairly intelligent, had improving power over the left arm, and continued to have an oozing of softened brain substance through the holes where the drainage tube had been; the relief from pressure thus obtained being the cause of his temporary improvement. On the night of September 8th he was restless and semi-delirous, tore off his dressings, and opened the flap, so that next morning we found a large hernia cerebri. He was, so far as mental condition and paralysis were concerned, in no worse condition than before this accident. From this date, however, he began steadily to disimprove. A large destruction of the protruding brain and, as *post-mortem* examination afterwards showed, of the neighbouring substance took place by suppuration and sloughing in spite of every antiseptic measure we could use. The condition of paralysis of the left side from which he had partially recovered, so far as his face, trunk, and upper extremity, were concerned, returned; and, on September 18th, he became completely hemiplegic, passed into stupor, finally into coma, developed hiccough, cerebral vomiting, preagonistic temperature, and died on the following day, September 19th.

Post-mortem, September 21st.—The hernia cerebri formed a protrusion about 3 inches in diameter and 1 inch beyond the level of the skull. The calvarium separated from the dura mater with normal readiness. Around the trephine opening the membranes were adherent to each other, so as to seal the cavity of the arachnoid. There was pronounced arachnitis about the base of the brain—most marked under the cerebellum, the medulla oblongata, and the anterior lobes of both sides, but more extensive on the right side, where the inflammation was not merely basic but extended up on the frontal convolutions.

Corresponding to the trephine opening at the fissure of Rolando, and in the centre of the hernial mass, was a ragged, sloughing, suppurating cavity, extending for more than an inch into the brain substance, but not engaging the ventricular cavity. On section, a tumour was found lying immediately behind this cavity, and occupying the posterior portion of the parietal lobe. It approached within half an inch of the longitudinal fissure, and within a quarter of an inch of the surface of the cerebrum. It was spherical in form, about one inch in diameter, and of equal consistence and resistance to normal brain matter.

The tumour has been examined by Professor Purser and Dr. Conolly Norman. It is a spindle-celled sarcoma.

In addition to the value which in the present unripe state of our knowledge of brain tumours attaches to every case which can add to clinical or statistical information, there appear to be some points of special interest in this record. As regards the clonic spasms, although intermission in their occurrence is the rule, the intermissions here were of an unusual character. They were irregularly extended over a very long period, and showed ups and downs of intensity instead of the progressive gravity which is generally seen. Besides, although they commenced in the leg and indicated the vicinity of the upper end of the fissure of Rolando as the focus of disease, and although these leg symptoms were followed by arm phenomena, and finally by engagement of the face—the natural sequence where a growth commencing in the centre for the leg gradually involved the centres for the upper extremity and face in the natural order of their anatomical relation; yet it was clinically and physiologically discrepant to find the arm or muscles of the trunk sometimes in a state of spasm, while the lower extremity although not paralysed was at rest. It is additionally out of rule to find that *post mortem* evidence discovered the tumour behind the situation where it might reasonably be expected to lie. The lessons derived from this part of the case appear to be:—

1. That the leg-centre extends further back than is usually taught into that part of the parietal lobule where its extension has been regarded as doubtful.

2. That the centre for the leg muscles is behind that for those of the thigh, as in this case the earliest muscles affected were those below the knee, and we may fairly conclude that the disease first engaged the part of the motor area next itself.

3. That what may be called referred pressure—that is to say, pressure remotely exercised—is a powerful and confusing factor in the examination of brain tumour. For here it is evident not only that the small localised growth on the back of the leg-centre proceeded to engage the centres for the arm and face, but what is even more remarkable, that it was able to affect them at times when its pressure spared and seemed to skip the intermediate and more closely related centre for the lower extremity.

The next point of great interest seems to be the absence of three out of that group of four symptoms which we are in the habit of relying on generally as indicative of tumour of the brain—namely, hemi-spasm, vomiting, optic neuritis, and fixed headache. Of these only the first was present, there was no optic neuritis, no vomiting of a cerebral character, and headache was a late, an occasional, and inconstant symptom.

It was this hiatus in the clinical history that caused so long a delay in adopting operation. This delay having occurred, it is satisfactory to know that it was not the cause of the loss of the case, as the nature and situation of the tumour would have rendered operation futile however early it had been performed. All that surgical interference did was to prolong the life of a man who was dying when operated on, and for a period to restore him to consciousness.

So far as our present knowledge goes the future of brain surgery affords no hope of cure in cases like this. To have a successful issue in such operations two conditions must exist—first, an accurate localisation of disease; and, second, that the neoplasm should be of the nature of a cyst or encapsuled growth, or so surrounded, or so differentiated in structure from brain substance, that its position can be felt or determined by instruments or by touch when the eye cannot reach it. It is obviously almost impossible to discover a tumour which cannot be seen, and which, like this, is traversed by instruments with just the same degree of resistance as the surrounding brain; and, even if it be discovered, it is quite impossible for the operator to know whether it has been entirely removed.

(*To be continued*).

Art. XIII.—*Three Cases of Ruptured Perinæum.*[a] By Richard John Kinkead, M.D.. L.R.C.S.I.; Lecturer on Medical Jurisprudence; Professor of Obstetric Medicine, Queen's College, Galway.

So clear are the indications, so positive are the advantages of the operation, that, at the present day, to advocate the immediate repair of a recently lacerated perinæum would seem to be a work of supererogation, and to need an apology.

To those who hold that puerperal fever is, in its orgin, solely septicæmic, the shutting of a facile door of entrance against the omnipresent, diabolically active, and poisonously powerful bacteria is positive proof of the absolute necessity of the operation—that omitting the immediate suture of a lacerated perinæum is little less than culpable negligence.

To those whose faith in bacteria is weak, as well as to those who, although firm believers in their insinuating ingenuity for evil, yet think that puerperal fevers may be—nay, more, not unfrequently are—produced from other than septic sources, the success which has followed insertion of suture immediately after labour, thereby avoiding the danger and disagreeability of secondary operation, has, or ought to have, been sufficient to make them adopt the operation as an imperative obligation.

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[a] Read before the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on Friday, March 7, 1890.

Yet, and with all, the obligation is frequently neglected, and we find patients turning up from time to time suffering from the evil effects of unrepaired perineal lacerations.

Perhaps the neglect to repair arises principally from two causes:—

1st. The notion—which overlooks altogether the danger of septic infection from a raw surface—that if the laceration is not extensive it is needless to suture, inasmuch as union may, and probably will, take place by means of rest, position, and cleanliness; and that if it does not no great harm is done. Whereas, on the other hand, if the laceration is extensive, more especially when the rectum is involved, suturing the wound is useless, for union is not likely to follow.

2nd. That laceration of the perinæum is an indication of incompetence, or neglect, likely to prejudice the patient against the practitioner; that if nothing is done, the fact of laceration having taken place will probably escape observation. Whereas, by inserting sutures attention is called to the injury. That, therefore, it is wiser not to suture, more especially as practitioners still bear in mind the comfortable words of the old masters—that union usually takes place from apposition of the legs.

I cannot help thinking that laceration depends more on the quality of the perinæum itself and the size of the fœtal head than on the rapidity of delivery and method of support.

One meets cases in which the perinæum has the elasticity of Indian rubber, which yield handsomely to the strain, be it ever so great; others of that rigidity and obstinacy that, oak-like, they crack, but will not bend; and others, again, that, on the slightest provocation, tear like pieces of brown paper.

In the first class, the practitioner gives himself the credit due to the perinæum, and flatters himself that his judiciously applied support, or scientific relaxation, has prevented laceration; in the second class, a tear may be avoided by incising the free margins; but in the last, nothing that can be done will preserve the perinæum untorn.

Whether it be that higher education and social progress produce larger fœtal heads or render the perinæum more friable, this deponent sayeth not; but certainly I now find it more impossible to preserve the perinæum intact than I used to when I began to practise; and I think that when ordinary precautions are taken practitioners should not be considered in fault if laceration occurs. When, however, it does happen, then I am convinced that it ought to be dealt with like any other wound, and sutured at once.

As the strongest argument which can be used in favour of any procedure is its simplicity and its success, I venture to trespass on the forbearance of the Academy with the history of three cases of ruptured perinæum; for, although to the members it may appear like again slaying the dead, to others who may still be doubtful it offers proof of the benefits of the practice.

They are further interesting from the fact that each is illustrative of a degree of laceration, and one is specially so from the size of the child's head, and from the injury to it inflicted during labour, and from which complete recovery resulted.

Case I.—Mrs. X., aged forty-two, or thereabouts, was taken in labour, at term, of her first child; presentation vertex L. O. A.; infant a female; pelvis normal and roomy, except that coccyx was ankylosed and somewhat projecting. Labour proceeded with fair rapidity until the head reached the projecting coccyx. After waiting a reasonable time, and finding that, although the uterine contractions were strong, neither the head advanced nor the coccyx yielded—the patient being fully under chloroform—I applied the forceps. Notwithstanding support *secundum artem*, and great care in extracting, the perinæum tore down to margin of the sphincter. The placenta was expelled in about five minutes, after which two sutures were inserted.

The wound healed by the first intention, and the puerperal period was normal throughout.

Case II.—Mrs. T. was also, quâ child-bearing, well stricken in years. She had been twice married. For the twelve years during which her first matrimonial life had continued she had been barren, and now, eighteen months after her second marriage, she was in labour with her first child. Verily, as to its size, she had made up for lost time with a vengeance. She was under the care of a nurse, and I had been sent for, as, after many hours, there was no advance.

The patient was a well-made, healthy woman, with a normal pelvis. The pains were rapid, and, though short in duration, strong. The perinæum was moderately distended, and, on separating the labia, the vertex could be seen slightly distending the vaginal orifice, in which position, the nurse asserted, it had been for two or three hours; it neither advanced during the pain nor receded in the interval.

I put on Simpson's long forceps at once, expecting to have very little trouble with a head so apparently nearly born; but instead of the head extending the forceps came away with a run, the tips of the blades striking and nicking the perineal margins at each side of the raphe.

Abdominal palpation and rectal examination showed the back of the head to be above the brim, and the presence of the vertex at the vaginal orifice to be due to enormous elongation of the head.

I again applied the forceps, and found it necessary to make traction in the axis of the brim, the head remaining motionless, and the blades slipping with an attempt at extension. As the head gradually descended the perinæum was enormously distended. As the head came down the grip of the forceps lessened. It was impossible to get them any higher, so I passed two fingers into the rectum, and thus gradually drew the head on. So elongated was the vertex, so large the head, that when the tips of the forceps on the parietal bones were clear of the vulva the tips of the fingers in the rectum just touched the orbits.

Although extraction was exceedingly slow, and although the perinæum was drawn as well forward as possible, laceration could not be prevented. Starting for each nick caused by the blades of the forceps, it gradually tore backwards and outwards at each side as the head progressed, until, when the child was born, the lacerations extended as far back as the posterior margin of the anal aperture. The rectum was not injured, nor the sphincter torn, the rents having apparently travelled around its border. In the centre was a triangular piece of perinæum, and the wound, looked at from behind, was of the shape of a capital W.

After delivery of placenta, I inserted four sutures passed deep into tissues and through the central portion. Four-fifths of the extent of laceration healed by the first intention, the apex of the central portion alone suppurating.

The puerperal period was normal. The child was well developed and healthy, but very large; the head was the largest I have met with. When applied as far as they could go the tips of the forceps only reached the middle of the parietal bones.

The left temporal bone was fractured, not by the forceps, for they did not get so high, but by pressure against the promontory of the sacrum. There was an enormous bloody tumour over the occipital bone, and for months the infant was hemiplegic (right).

He gradually has recovered the power in the right side, and now, at three and a half years of age, he looks perfectly healthy. He is well grown for his age; his intellectual powers are quite equal to those of other children; and any deficiency of power in the right side is only remarked by a decided tendency to be left-handed and left-footed.

CASE III.—Was a primipara, aged twenty-two. The first stage was tedious; the second very rapid. As the head advanced quickly I urged the patient not to strain, and exhorted her to cry out—all to no purpose. As the head touched the perinæum she seemed to lose all control, and, as if compelled to strain, with one vigorous effort shot the child clean out of the vulva at least six inches from her on to the bed. There was no pause as the head was born; no pause for rotation; no gradual expulsion of the shoulders as the head cleared the orifice of the vagina, rotating as it came. The liquor amnii were ejected, as if from the hose of a fire-engine, clean over the foot of the bed, while the shoulder was driven like a plough-share through the perinæum. The laceration extended into the anus, and for an inch up the rectum.

A suture passed from behind forward and through the sphincter, entering at somewhat behind the diameter of the anal orifice, and passing in front of the torn bowel, to emerge on the other side opposite its point of entrance through the edges of the wound in both rectum and anus into handsome apposition. Two other sutures repaired the rest of the rent.

The puerperal period was normal throughout, and the wound healed by the first intention.

ART. XIV.—*On Extraction of Parietal Intra-Uterine Fibro-myomata through the Natural Passages by means of Professor Vulliet's method of Dilatation by Tampons.* By DR. EMILE JUILLIARD. Translated by CHARLES G. CUMSTON, First Assistant at Docent Kummer's Clinic, Geneva.

ATTACHED as Assistant-Physician to the Policlinic of the Geneva University, we have often had occasion to assist Professor Vulliet in his different gynæcological operations; we have at different times seen him employ a method, invented by himself, for the curative treatment of parietal uterine fibro-myomata, either at the Policlinic or in his private practice. What we understand by parietal fibro-myomata are those encased in the wall—that is to say, which are neither sub-serous nor intra-uterine. These fibromata may be covered on one of their sides by only the mucous membrane or the serous membrane. Their clinical physiognomy consists in the fact that they project a little or not at all, in the state of an independent tumour, into the uterine or the serous cavity. It is to be remarked that we do not report in our observations either the cases of abdominal fibrous tumours that we removed by laparotomy or those of decidedly intra-uterine polypi. Surprised by the particularly favourable results of his method, we decided to write a memoir on this subject, which we will divide as follows:—

I. Ætiology, Pathological Anatomy, and Symptoms.
II. Of the different Methods Employed; Vulliet's Method.
III. Observations and Conclusions.

I. ÆTIOLOGY, PATHOLOGICAL ANATOMY, AND SYMPTOMS.

Ætiology.—The ætiology of fibro-myomata of the uterus is involved in obscurity, as much as is the origin of all other neoplasms. Cambermon [1][a] attributes the formation of "fibrous bodies and polypus of the uterus" to a non-fecundated ovum, continuing to live by its own organic life and transforming itself into a fibroma after passing between the "crypts" of the uterine walls. Virchow [2] says that the pathological processes of the formation of fibro-myomata must be explained either by an abnormal intensity of local inflammation, as in the case of partial irritation of the mucous membrane, gaining on the contiguous parenchyma, or to a debilitated condition of the uterine walls occasioned by constitutional affections, as chlorosis or local diseases. Winckel [3] also upholds local irritations as a cause. Cohnheim [4] attributes the origin of all tumours to the ulterior development of embryonic germs which have not served for a fœtal development. According to Cohnheim there are germs in the uterus capable of developing under the influence of a physiological irritation—namely, pregnancy. It is possible that these germs can develop also without this physiological influence and end in a regular and a typiçal formation. He brings up the same argument as Cambermon, that fibroma develops only after puberty—that is to say, after the formation of the ovum. Galippe and Landouzy [5] sterilised the surface of two fibrous bodies of the uterus and cut them with a knife rendered aseptic. The pieces from the centre being placed in different culture-liquids showed spherical micrococci united two by two in a great mass, or in long chains, and at last small bacilli, either isolated or united two by two, forming long filaments. The uterine fibro-myomata seem to these authors to be the result of a proliferative irritation provoked by a parasitic organism. The presence of micro-organisms in the tissues is such a common fact that one can draw some conclusions relative to their action only by isolating and cultivating them by inoculation. If experiments prove that inoculation determines the formation of tumours similar to those where the suspicious microbe was found, then only have we the right to attribute a pathological *rôle* to any one of these microbes. Certain peculiarities which support the theory of Galippe and Landouzy were pointed out to us at different times by Professor Vulliet. Some small localities situated at the foot of the Jura Mountains furnished us with a large proportion of the cases treated; while in those coming from other regions to Professor Vulliet for uterine troubles the number of fibro-myomata was much smaller. The genesis of these tumours could be explained in the same manner as that of goître, which centres itself in certain parts, and seems also to result from a micro-organism. Further on we will furnish another argument in favour of this theory. It is in the prime of life that fibromata develop with the greatest frequency. Gusserow has collected 919 cases, as follows:—

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[a] The numerals refer to the Bibliography at the end of this paper.

10 years	1	case of fibro-myomata.
14 ,,	1	,, ,,
16 ,,	1	,, ,,
17 ,,	1	,, ,,
18 ,,	3	cases ,,
19 ,,	8	,, ,,
20–30 ,,	156	,, ,,
30–40 ,,	357	,, ,,
40–50 ,,	338	,, ,,
50–60 ,,	36	,, ,,
60–70 ,,	12	,, ,,
70 — ,,	5	,, ,,

Winckel, with 527 cases, other than those of Gusserow, gives the following statistics:—

20 years	9 cases.
20–30 ,,	98 ,,
30–40 ,,	180 ,,
40–50 ,,	180 ,,
50–60 ,,	52 ,,
60–70 ,,	6 ,,
70 — ,,	2 ,,

From these two tables we see that the maximum of frequency is between 30 and 50 years. From this period the frequency of the affection decreased progressively towards the two extremities of life. Unmarried condition, abstention from sexual intercourse, sterility, do not seem to have any influence whatever on the production of these neoplasms, as certain authors affirm, for they are met with more frequently in married women. Dupuytren[6] was of this idea. Of 58 cases of fibro-myomata that he collected, 54 were in married women, or at any rate were not in virgins. Of 51 cases, 9 women had not been delivered of children. Among 959 cases mentioned by Schroeder, Hewitt, Marion Sims, More Madden, Engelmann, and Gusserow, we find 672 married women, 287 unmarried, but not all virgins. Of the 672 married women, 464 were mothers.

Anatomy and Pathology.—As to the anatomy of the fibro-myoma, it is composed of the same elements as those of the muscular layer of the uterus. Consequently, it is composed of striped muscular tissue and a variable quantity of connective tissue. If the connective tissue predominates over the muscular, the tumour is harder, more circumscribed and independent of the organ, and less vascular. If, on the contrary, the muscular fibres are in greater number, the neoplasm is then softer, more diffused, and intimately mixed with the uterine wall, and more vascular. An anatomical distinction between fibroma and myoma is, nevertheless, not admissible, because there is never a complete absence of either of the two constituent elements. It is perfectly admissible that all fibromata have an intra-parietal origin. They arise in the centre of homologous tissue, sometimes near the serous, at others nearer the mucous membrane, and sometimes in the central zone of the thickness of the wall. Later the tumour becomes either sub-serous, sub-mucous, or interstitial in type, following the direction of its growth, and the direction in which the contractility of the walls pushes it. If the external uterine layer and the internal uterine layer are of equal strength, the fibroma remains indefinitely intra-parietal; but if this equilibrium is disturbed, the fibroma will be pushed to the side of the uterine cavity, if it be the external layer which is the stronger; and, if it be the internal layer, it will be forced to the side of the peritoneal cavity. The final result of this migratory action is the formation of a tumour with a pedicle, sub-serous or sub-mucous. We have, nevertheless, been able to convince ourselves that certain circumstances slacken or prevent the migration. This is the case in fibromata, which are originally soft, because the muscular element predominates over the connective tissue element; and in those which become so often œdematous, or undergo some other form of degeneration, as well as in diffused fibromata. Lastly, migration cannot take place when the entire uterine wall undergoes a fibrous transformation in such a way that there does not exist on either side of the fibroma a layer of contractile tissue. Every fibroma, then, has not necessarily a tendency to migration. We think that there exists in the parietal contractility an expulsive force, the "*Vis Medicatrix Naturæ,*" thanks to which the organ tries to get rid of the foreign body which encumbers it. The fibro-myomata of the uterus are separated from the wall of the organ by a fibrous capsule, the more apparent the older the date of growth, the larger its size and its richness in muscular fibres. Exteriorly it is enveloped by a loose layer of connective tissue, in such a way that it may be completely detached from the uterine substance. The vascularisation, which depends on the rapidity of the growth of the neoplasm, differs according to the type of tumour.

The Modifications of Fibro-myomata.—All neoplasms encased in the walls of the uterus produce symptoms of stagnation in the vessels of the mucous membrane. These symptoms are the more pronounced the nearer the neoplasm approaches the uterine cavity. Vulliet has often found in the uteri which he dilated, that when the mucous membrane could be traced as far as the parietal neoplasm, this mucous membrane was red, swollen, and œdema was present. It is easily understood that inflammatory germs arriving on the mucous membrane in such a state of congestion can easily produce a real inflammation. Once the inflammation is well installed, it dips deeply, the endometritis becomes metritis, and inflammatory disorders naturally become more marked in the tissue of the neoplasm, which, by its slight vascular nature, offers less resistance than the normal parenchyma. This inflammation can go as far as necrosis. But the most frequent cause, without doubt, of inflammation of a fibro-myoma is a traumatism caused by explorative or operative attempts. Inflammation of a fibro-myoma must not be confounded with the momentary increase of volume to which they are subject at the approach of menstruation. Pure and simple inflammation is rare, and is nearly always followed by suppuration.

Suppuration.—G. Braun[7] observed putrefaction of a fibroma, distending the uterus 17 centimetres. Hecker[8] withdrew by puncture several litres of pus from a so-called ovarian cyst. The autopsy showed it to be a large fibroma. Charles Carter[9] showed at the Obstetrical Society of London a uterine fibroma, 8 inches long by 6 inches wide, from a woman of sixty-nine years. In the anterior wall of the neoplasm was found an excavation from which three pints of pus had issued. Vulliet (Case X.) withdrew by puncture four litres of pus, and a second time by incision about twelve litres. The causes of suppuration of uterine fibro-myoma cannot all be explained with certainty. We can, nevertheless, cite purulent discharges in the region of the neoplasm where the putrid inflammation propagated itself beyond the fibrous body.

Necrosis.—In necrosis one finds at the limit of the mortified tissue purulent infiltrations in the form of spindles. Although traumatism is not spoken of by authors, we think that it is the ordinary cause of suppurated fibroma.[a] In Case X. the putrid transformation took place after a fruitless puncture. Calculous transformation has also been accused of predisposing the neoplasm to suppuration.

Necrosis is more often met with in cases of interstitial or submucous fibromata—that is to say, in those cases in which, as we have said, the neoplasm is nearer to the uterine cavity. This can be occasioned only by troubles of nutrition. It is by necrosis of the pedicle, compressed between the lips of the "boutonnière" from which the fibroma issues, that spontaneous detachment of certain tumours is produced, having passed from the interstitial state to that of polypus.

Fatty Degeneration.—The fatty transformation rarely involves all the elements of the neoplasm. This retrogressive metamorphosis is generally followed by diminution in volume of the tumour, its consistence becoming more firm because the connective tissue elements do not undergo modification; this process is met with above all in women after the menopause or after oöphorectomy. Calcification commences in the centre of the tumour in a series of isolated bundles, running in different directions and separated by fibrous masses. In an advanced stage bone-like masses may form, which old writers look upon as osseous transformation. Calcification is the consequence of modifications in the nutrition of the new growth.

Carcinomatous and Sarcomatous Degeneration.—Several authors, among others Klob and Förster, upheld the view of a carcinomatous transformation taking place in certain fibromata; but it is very possible that these authors made a mistake in the diagnosis, and that they had to do with sarcomata proceeding from connective tissue. Fibroma and carcinoma can co-exist in the same uterus, as Simpson often proved; the carcinoma may then invade a part of the fibroma—it is here the question of an invasion and not of a transformation, which has never been demonstrated.

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[a] To-day spontaneous suppuration is not admitted. All suppuration has for cause the presence of a pyogenic micro-organism. These micro-organisms can penetrate into the organism without any existing lesion. The most frequent entrance is by traumatism. (Cf. Strauss, Experiments. Paris. 1884.)

Mucous Degeneration.—Mucous transformation is sometimes associated with dilatation of the vessels in fibro-myomata. It is characterised by the appearance of abundant liquid in the interstitial connective tissue. This liquid resembles that of œdema, but the microscope shows a proliferation of round cells with a nucleus, and reagents prove the existence of mucin.

Cystic Degeneration.—This form of degeneration presents itself under three varieties. The first of these is an œdematous softening, the intermuscular connective tissue being invaded by an œdematous infiltration. This infiltration may lead to the disappearance of this tissue by a kind of dissolution. It results in forming small cavities, that Cruveilhier and Péan call "géodes." which are filled with a clear liquid, having properties similar to those of lymph; mucin is not to be found. The muscular fibres, pushed back and pressed by the liquid, become atrophied, and the tumour shows distinct fluctuation. As these cavities are very small, it often happens that puncture is without result. It can easily be understood that in such a case the muscular contractility of the uterine walls can take no active part in expulsion. This action is produced to a less and less extent, as the growth of these tumours is generally very rapid, and it causes atrophy of the muscular layers, which are capable of pushing out the neoplasm. In a second form cavities are to be found, varying between the size of a pea and that of a walnut; these cavities are separated by muscular fibres and degenerated connective tissue. In this tissue exist fusiform, round, and star-shaped cells, with one or several nuclei. The cavities are filled with the *débris* of tissues and cells, as well as blood coming from the rupture of destroyed vessels. In time, following this transformation, the cavities may become very voluminous, and contain very large quantities of liquid. In this second form epithelium cells have not been discovered. The third form is lymphangiectasia.

If we have entered somewhat at length upon these modifications of fibrous tumours, it is only to be the better able to explain certain interesting particulars of some of our observations which are to follow.

Diagnosis and Prognosis.—It is during their intra-parietal stage that fibro-myomata increase the most rapidly in volume; it is also during this period that they are subject to degeneration. It is therefore important to be able to make the diagnosis at an early date, in order to shorten this period, which permits the risk of rapid growth. and also transformation, by which the prognosis is made more grave. For the moment we will take up only the subjective symptoms. Intra-parietal fibro-myomata may betray themselves either by the displacement of the uterus which they cause, the increase in size of the organ, or by the menstrual troubles to which they lead—such as metrorrhagia, menorrhagia, dysmenorrhœa. Sterility and premature labour may sometimes be added to the preceding symptoms, or may constitute alone, during a certain time, the principal symptoms. The uterine displacements are mostly anterior or posterior. If the neoplasm be developed in the anterior wall, the organ usually bends forward; it deviates in the opposite direction when it exists in the posterior wall. Nevertheless, it would be an error to suppose that it is always thus. We recently saw, in the private practice of Vulliet, a case of fibrous tumour of the anterior wall, with retroversion of the organ and incarceration in the narrow pelvis, behind the promontory (Case IV.). When the fibromata originate from the lateral regions, the resistance that they undergo in unfolding the broad ligaments causes the body of the uterus to deviate laterally. The uterine canal follows the movements of the organ—it lengthens, is displaced, curves, or becomes spiral. Usually the displacements of the organ show themselves by functional troubles of the digestive or urinary organs,[a] causing consequences of the most grave nature, even uræmia, as in Case XI. of our series, or by pains, resulting from pressure on the nerve plexus of the pelvis. The symptoms of intra-parietal fibro-myoma may be more or less pronounced, according to the position, the development, or the progression of the neoplasm. But it is to be remarked that these symptoms are neither characteristic of nor peculiar to this kind of tumour. Fibro-myoma may be mistaken for other lesions or conditions of the uterus—such as various pelvic discharges, ovarian or tubal tumours, chronic metritis, interstitial pregnancy, &c. A sure diagnosis can be obtained only by proving the existence of the tumour by means of a direct exploration of the uterine walls.

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[a] Nélaton (Guyon, "Des Tumeurs Fibreuses," Paris, 1880, page 49), performed enterotomy on a case of complete obstruction of the rectum by pressure, caused by a small fibroma.

It now remains to solve a question—namely, "Is surgical intervention justifiable in cases of intra-parietal fibro-myomata which have no alarming symptoms?"

Vulliet[10] and Rose[11] insist on the importance of early operation in fibrous bodies of the uterus. "Change of life in women is far from assuring their atrophy and the disappearance of symptoms" (Rose). "Small intra-parietal fibro-myomata are the commencement of large fibro-myomata whose extirpation later on might necessitate very dangerous operations" (Vulliet). The cures by spontaneous elimination are comparatively rare, and if, as Schroeder says, these tumours do not determine a direct danger for existence, they at least poison the pleasures of life. These considerations seem to me not only of a nature to justify operative attempts, but also to dictate to the surgeon his duty to discover these tumours in time to combat them.

Works cited.

[The numbers correspond to those in the text.]

[1] "Considérations sur les causes de la fréquence des corps et polypes fibreux de l'uterus."

[2] Virchow. "Pathologie des tumeurs." Tome III. Translation française." Page 343.

[3] Winckel. "Ueber Myoma des Uterus" (Volkmann's klin. Vort. No. 98).

[4] Cohnheim. "Vorlesungen über allgemeine Pathologie. Berlin. 1877.

[5] Galippe et Landouzy. "Note sur la présence de parasites dans les tumeurs fibreuses myomes utérines." Soc. biol. Paris, Feb. 18, 1887.

[6] Dupuytren. "Journal de méd.," t. v., page 193.

[7] G. Braun. "Wiener med. Zeitschrift." 1868. No. 100 und 101.

[8] Hecker. "Klinik der Gebürtskunde," II., page 103.

[9] Carter. "Obstet. Transactions." London. 1872. Vol. XIII., p. 167.

[10] Vulliet. "Contribution à l'étude du traitement des fibro-myômes intra-pariétaux de pétites et moyennes dimensions." Paris.

[11] Rose. "Ueber die Nothwendigkeit der Myom-operationem" (Deutsche Zeitschrift für Chirurgie).

(*To be continued.*)

ART. XV.—*A Rare Case of the Congenital Form of Ranula.*[a] BY D. EDGAR FLINN, F.R.C.S.I.; Examiner in Sanitary Science, Royal College of Surgeons in Ireland; Surgeon, St. Michael's Hospital, Kingstown.

IN a paper read before the Moscow Medical Society by Dr. N. Müller, on "Ranula in Newborn Children," he states that in the Foundling Hospital at Moscow four or five cases of congenital ranula had been observed during a period of seven years in about 80,000 children; and the *London Medical Record* of December, 1877, makes mention of the fact that, up to that period, there were only two known instances of this affection on record—one published by Dubois in 1833, and a second, of more recent date, by M. Lombard. Mr. Bryant records two cases; both were, probably, he states, congenital, and came under his notice when the patients were about twenty years old. Sir W. Fergusson records one case. Ranula was formerly thought to be due to an obstruction of the salivary ducts; but recent authorities seem to favour the theory that it is caused by obstruction of one of the mucous glands that are situated beneath the tongue. Fairlie Clarke, in his work on "Diseases of the Tongue," speaking of the larger tumours that are occasionally, but rarely, found lying between the tongue and the lower jaw, says that, "Although the term ranula is applied to them, they are analogous to the sebaceous tumours which are so frequently met with on the skin, and like them, contain a thick gritty, putty-like substance, somewhat offensive in odour. The mucous membrane beneath the tongue is, furthermore, often the seat of cystic formations, which take their origin sometimes in the ducts of the sublingual and submaxillary glands, sometimes in the areolar spaces, and, possibly, also sometimes in the bursa, between the genio-hyo-glossi muscles. To all these cystic growths, whatever may be their exact pathology, the term ranula is applied."

The case of ranula that I briefly desire to bring under the notice of the Royal Academy of Medicine resembles that class of tumour noticed by Fairlie Clarke as analogous to the sebaceous tumours found on other portions of the body. It presented some peculiar and interesting features which I deemed worthy of recording, more especially as the growth was noticed on the *second day after birth, and the subject is now very nearly twenty-nine years old.*

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[a] Read in the Section of Surgery of the Royal Academy of Medicine in Ireland, Friday, March 28, 1890.

Case.—This patient was admitted into St. Michael's Hospital, Kingstown, on March 19th, 1889, as a very urgent case, requiring immediate relief, as he had extreme difficulty in breathing, and had difficulty in swallowing even liquids for forty-eight hours previously. Certainly, the appearance of the patient was alarming. He showed great prostration; his appearance was very anxious; his countenance bore a dusky hue, and he had extreme dyspnœa; his mouth was wide open, his pulse was weak, and he was bathed in a profuse perspiration. On examination, at first sight, he gave one the impression that he was suffering from acute glossitis. It was with great difficulty he could articulate, and it was impossible to understand what he said. The tumour very nearly filled the entire cavity of the mouth, and the tongue was pushed upwards and backwards, and could hardly be felt with the tip of the finger. The tumour also projected beneath the jaw into the mylo-hyoid space, and assumed an elongated shape in this situation, being about five to six inches in length; it was hidden from view by the patient's beard, and was as large as a good-sized orange. The projection into the cavity of the mouth commenced to cause inconvenience about some eight months prior to the date of his admission to hospital, and for over a month he had experienced difficulty in swallowing, and subsisted principally on liquid nourishment. He daily essayed to get some particles of solid food down, but it was quite an ordeal to do so, as it required a good deal of manipulation to get the food to the back of the mouth. There was a continual dribbling of saliva, and for a week previous to my seeing him he was unable to sleep or lie down in a recumbent position for fear of suffocation. On examining the tumour, fluctuation was quite evident in the mass in the mouth, but in the neck it partook more of a solid nature.

The treatment that suggested itself was to aspirate that portion of the mass within the mouth, which was done soon after his admission. Nearly fifteen ounces of fluid of a creamy nature was drawn off, and gave him at once great relief. He could now speak more distinctly, but found it difficult to move his tongue forward. The tumour rapidly filled again in the mouth, and was aspirated a second and a third time, large quantities of a similar fluid as before being drawn off at each aspiration. The mass now in the neck became softer, and deep-seated fluctuation could be detected. It was then decided to lay open the tumour from the neck, and I made a deep incision into it, which gave vent to some four ounces and a half of thick brown pultaceous matter, rather offensive in odour. I then scooped out the remainder of the cavity, and took away a good deal of cheesy and grit-like substance. After this the cavity suppurated, and there was a free discharge of pus for a week or so. A short time subsequently the patient left the hospital freed from the unsightly mass that had disfigured him for so many years.

In the case under notice, the patient states that so long as he can remember he had a swelling about the size of a small Spanish nut lying beneath the tongue, which caused him little or no inconvenience, excepting that, at some times more so than others, he had a slight difficulty in articulating plainly. The parents both assure me that they noticed this swelling when their son was but a day or two old. It gave them very little concern, as it appeared so small, and did not seem to interfere with the movements of the tongue, the child being able to suck freely, and protrude the tongue. At this time it was about the size of a small pea, and remained that size for some years, then got a little larger, increasing to the size of a small nut. It remained then stationary until some fifteen months ago, when it commenced to increase rapidly in size, and interfered with the movements of the tongue. No assistance or treatment was ever sought for, as the sufferer had a dread of surgical interference; and if it were not for the fact that he went within measurable distance of both starvation and suffocation he would, probably, not have given his consent to any ameliorative measures being adopted.

I may mention that there was a free connection between the mass in the mouth and that in the neck below the jaw.

CURE FOR A BLACK EYE.

THE following recipe, from the *St. Louis Polyclinic*, may prove useful, for æsthetical reasons, to some of the younger members of our profession. "There is nothing," says our contemporary, "to compare with the tincture or a strong infusion of capsicum annuum mixed with an equal bulk of mucilage of gum arabic, and with the addition of a few drops of glycerin. This should be painted all over the surface with a camel's-hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted, this treatment will invariably prevent the blackening of the bruised tissue."

WEIGHT AND HEIGHT.

IN a recent number of the (N. Y.) *Medical Record* the following empirical rule for determining normal weight from height is said to be approximately correct:—A man should weigh just as many kilograms as he measures centimetres in height after deducting one metre. A man who measures in height 1 metre 80 centimetres (5 ft. 11 in.) should weigh 80 kilograms, or about 160 pounds.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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History and Pathology of Vaccination. Vol. I.—A Critical Inquiry. Vol. II.—Selected Essays. By EDGAR M. CRUIKSHANK, M.B.; Professor of Comparative Pathology and Bacteriology in, and Fellow of, King's College, London, &c. London: H. K. Lewis. 1889.

IN his preface Dr. Cruikshank says, in reference to "Jenner's communication to the Royal Society," "I was so struck by the contents of this paper, and the small amount of evidence upon which Jenner had first ventured to propose the substitution of cow-pox inoculation, or *vaccination*, for the old system of small-pox inoculation, or *variolation*, that I was induced to carefully look into," &c.

This is the text on which the whole of the first volume—constituting what the author entitles "A Critical Inquiry"—is founded. The second volume consists of "Selected Essays," and we note among these one—prudently placed last in the book—entitled "An Outbreak of Cow-pox near Crickdale (Wiltshire), 1887. Cruikshank. Published in the *British Medical Journal*, December, 1887, and July 7th and 14th, 1888." While we admit the value of the "Selected Essays," and the great convenience to future students of a collection of this kind, containing the more important works of Edward Jenner, Pearson, Woodville, Henry Jenner, Birch, and others of less note, we find that they are selected more with the view of supporting the author's views than as a mass of evidence for the formation of a judicial opinion, such as the author professes, in his preface, that he is about to give. The author's slighting reference to Jenner's insufficient grounds for the introduction of vaccination, which we have quoted, contrasts somewhat curiously with the coolness with which, in his own writings, he assumes the outbreak at Crickdale to be identical in character with the Hendon cow disease, described by Dr. Klein as cow scarlatina, and which a reference to the Report of the Medical Officer of the Local Government Board will show to be founded on not merely "a small amount of evidence," such as the author attributes to Jenner as constituting the foundation for the proposed substitution of vaccination for inoculation, but practically on no evidence at all.

We would be almost inclined to believe, if we were not assured to the contrary, that the second volume of this work, containing the "Selected Essays," was compiled by someone other than the author, and had not been read by him before he wrote the first volume on "Critical Inquiry." We have pursued the rational course and read the second volume first and the Critical Inquiry afterwards.

Although we had before, from time to time, during many years, read all, or nearly all, the "Selected Essays," we had not previously read them in a collected form. This form of arrangement, and the added notes, have not, in the smallest degree, modified the opinion we had—fortunately, in common with many and greater minds—formed of the soundness of Jenner's views regarding the protective power of vaccination against small-pox, and the justification he had in arriving at that opinion.

When we came to read Dr. Cruikshank's second volume we were utterly astonished to find that a man whose name has been associated with so many careful researches could have so far "gone off his head"—to use a vulgarism—as to fail to appreciate the investigations of Jenner; and, still more, to fail to admire the acuteness of the mind of the man who, entering upon an almost new field of inquiry without any of the modern appliances for scientific physiological and pathological research, had ascertained and generalised upon a vast amount of facts, with the result that he convinced large numbers of his contemporaries, and so established his views that they have held the field ever since, and are still believed in by the vast majority of scientific and practical medical men, and, we might almost say, have formed the foundation of bacteriology.

We think, notwithstanding the elaborate "Critical Inquiry" of Dr. Cruikshank, that the opinion of Dr. Woodville, expressed to Sir Joseph Banks, the then President of the Royal Society, on the 16th of May, 1799, after a careful analysis of 200 cases (Vol. II., p. 153), will continue to be that of most members of our profession, viz.:—"The instances which have been brought forward to prove that those who have undergone the genuine Cow-Pox resisted the infection of the small-pox are unquestionably decisive, and sufficiently numerous to establish the fact in the most satisfactory manner." This, let us remember, is not Jenner's, but Woodville's, opinion, and it is a contemporary opinion, formed after a careful consideration of the whole subject.

It is quite certain many mistakes were made by Jenner and his contemporaries which are easily accounted for by the then, and until very recently, prevailing ignorance concerning bovine diseases. Had Jenner and Woodville been aware of the various forms of eruptive diseases now known to prevail among cows, no doubt their observations would have been much more accurate; but the writings of these pioneers of vaccination show that they were not unaware of the risk of mistaking other forms of disease for true cow-pox, and Woodville seems to attribute some failures to such mistakes.

While the work of Dr Cruikshank does not display the same *animus* against Jenner as that of Dr. Charles Creighton, we cannot refrain from repeating what we have already observed, that his remarks do not convey to the reader that he is writing in accordance with the judicial spirit he professes; and this work will go far to damage the reputation of Professor Cruikshank as an independent and reliable observer, especially of other men's work.

Fifth Annual Report of the Hamilton Association for Providing Trained Male Nurses. London: 1890. Pp. 22.

ALTHOUGH so short a time in existence, this Association has rapidly increased its working staff, and closed the year ending 1890 with a small balance after paying £2,411 16s. 5d. in wages to its male nurses. Most of the nursing is done in private houses, but several hospitals employ nurses from this Association, and some of the nurses devote their time to massage. An important point is that the Association have some of their nurses trained for a year in a general hospital, and hope gradually to increase the number of those so trained. The favourable predictions we made when noticing the Preliminary Report in these pages have been more than fulfilled.

Baths and Bathing: a Book for Everybody. By JOSEPH FARRER, M.D. Fourth Edition, revised and enlarged. Bristol: John Wright & Co. 1890. Pp. viii.–110.

A POPULAR book, dealing in a sketchy manner with numerous points more or less connected with bathing, from a description of ruins at Bath to the advantages of "anti-calcaire," the method of resuscitating the apparently drowned, and a diagram of the "Itch Insect." The notes on various forms of baths and gas heaters are good. Willman's Automatic Gas Water Heater, which is self-regulating, the gas being turned down as soon as the water boils, and turned on when cold water flows in, is especially praised.

There is a tendency to praise the articles advertised in the book, but perhaps they deserve it.

Årsberättelse (den elfte) från Sabbatsbergs Sjukhus i Stockholm för 1889. Afgifven af Dr. F. W. WARFVINGE, Sjukhusets Direktör och Öfverläkare vid dess medicinska afdelning. Stockholm: Isaac Marcus. 1890. 8vo. Pp. 265.

The Eleventh Annual Report of the Sabbatsberg's Hospital, Stockholm, for 1889. Compiled by Dr. F. W. WARFVINGE, Director of the Hospital and Principal Medical Officer of its Medical Department.

THE present Report of the Sabbatsberg's Hospital, Stockholm, probably exceeds in excellence any of its predecessors.

During 1889, 3,699 intern patients were treated in the wards of the hospital, in which the number of beds continues to be 340. Of the patients, 2,011 were treated in the medical department, compared with 1,418 in the surgical, and 270 in that of gynæcology. The number of deaths rose to 280, or 7·57 per cent., and the number of days spent under treatment was 104,035. The expenses per diem and per patient were calculated on the average at 1 krona and 44 öre (that is, 1s. 7d. of English money).

After elaborate tabular statements as to the patients and diseases treated during the year in the three departments, and an account, also in abstract, of the chief operations performed in the surgical and gynæcological departments, there follow a series of special communications by the members of the medical and surgical staff of the hospital. The longest and perhaps the most interesting of these is an article by Dr. Warfvinge, the head of the staff, on "The Influenza in its Clinical Aspect" (*Influensan i kliniskt hänseende*). This memoir is based, on the one hand, on 206 cases—for the most part grave and complicated cases—of influenza treated in the Sabbatsberg's Hospital in December, 1889, and up to the commencement of 1890, and, on the other hand, on numerous communications received from physicians in all parts of Sweden, and placed at the disposal of the author. The rapid onset of the disease, after a short incubation of 2 or 3 days, justified up to a certain point the names of "Catarrhe éclair," or "Blitzkatarr," which had been applied to it. Dr. Warfvinge's paper gives an excellent clinical description of this weird malady.

The other communications—three in number—are all from the pen of Dr. E. S. Perman, the subjects being—"On the operation for incarcerated Diaphragmatic Hernia;" "A Contribution to the Knowledge of Resection of the Pylorus and Gastro-enterostomy;" "Cancer of the Stomach—Resection of the Pylorus—Death from Ether Collapse."

A Historical Sketch of Surgery: Ancient, Mediæval and Modern. By B. A. WATSON, A.M., M.D.; Surgeon to Jersey City and Christ Hospital. Reprinted from the *New York Medical Journal* for August 2, 1890.

THIS pamphlet, for its first 36 pages, follows the beaten track that medical historians have made so well known to the profession. Now, these historians appear to us to follow each other as sheep do a bell-wether, and, as a rule, they all neglect the mediæval period—a period most instructive and interesting to every medico-historical student, and made available to every reader by the admirable reprints of the Master of the Rolls and the Early English Text Society and the Diary of Pepys.

The distinct mention of the mediæval period in the title of the pamphlet made us hopeful that the good work of Fiovoranti, Fantonus, Moulins, Bullien, Borde, and Scultetus, would be mentioned, but the author does not once refer to them—even Morgagni is overlooked.

If he had examined the works of these writers he would have found many of the discoveries of to-day. We need do no more than mention laparotomy, trephining to open a cerebral abscess, suturing of the peritoneum, and many other operations. Of course, we get an account of Paré, but we greatly wish that writers quoting Paré would break new ground, Why are the stories, stale as a circus clown's jokes, repeated until the eye wearies reading them? Could not the writer give Paré's brief and clear account of his introduction of the ligature in his own words, and describe his rude midwifery instruments which foreshadowed the forceps of the Chamberlains?

Of Irish surgeons there is nothing said. We are not surprised. Even here few surgeons are familiar with the classic writings of O'Halleron, and few know of his fearless operations on the cerebrum and corpus callosum.

We confess to disappointment on reading the history of American medicine. Surely he should have found space for mention of Zabdiel Boylston, the friend and medical attendant on the Rev. Dr. Cotton Mather, of evil repute, whose persecution of the old, bed-ridden women of Salem as witches has made his memory to be loathed to this day in Massachusetts. Nevertheless, Cotton Mather induced Zabdiel Boylston to try inoculation as a preventive remedy against the threatened epidemic of small-pox, and Boylston, to show his faith in the remedy, inoculated his son; and for his success and courage he was, on his visiting England, made a Fellow of the Royal Society. Again, American historians can hardly pass over Rush's name without reference—even if he did bleed George Washington to death—if only to vindicate his reputation from Cobett's satirical title, "the Rush-light."

To come to later times, we think that some credit might be given to John Bell, of Edinburgh, who operated both on the pleura and pericardium, and who had as a private pupil Ephraim M'Dowell, of Danville, Kentucky, the ovariotomist, the son of Samuel M'Dowell, of Rockbridge County, Virginia, who, if he had not attained such great celebrity as an ovariotomist, would be remembered to-day as one of America's greatest lithotomists. Mention might also have been made of Dr. Charles M'Creary, of Hartford, Ohio County, Kentucky, who in 1817 successfully extirpated the whole clavicle. When mentioning Horsley, Dudley's success in trephining for epilepsy, an account of which was published in the *Transylvania Journal of Medicine* in 1828, should have been referred to.

But what must be thought of an author writing in a New York journal ascribing the discovery of chloroform to Simpson instead of to his countryman, James Guthrie, of Sackett's Harbour, New York? Neither is he right in ascribing the discovery of ether to Morton, as has been shown recently by Mr. Foy in our columns. And in his deserved eulogy of Marion Sims, the place of his birth, New Orleans, ought to have been mentioned.

The errors pointed out have resulted from the neglect of the author to study original works. He copies from copies, which is to be regretted, for he possesses the gift of composition, and has produced a very readable, though inaccurate, sketch of the history of surgery.

Observations on some Rare Diseases of the Skin. By J. F. PAYNE, M.D. Oxon. With 4 Plates. London: Smith, Elder & Co. 1889.

IN the hope of interesting a wider circle of the medical public, and so aiding in the diffusion of dermatological knowledge, Dr. Payne reprints, with additions, some of his communications to the Pathological Society of London and to the *British Medical Journal.*

He brings under notice four affections—viz., Granuloma fungoides; erythrasma; a nodose condition of the hair; and pruritus hiemalis, or "frost itch." The last-named affection, first described by Duhring and by Jonathan Hutchinson, is an exaggerated form of a susceptibility to itching which many persons experience from a fall of temperature, especially in keen dry air. Its therapeutics are not very satisfactory.

The figures of nodose or "beaded" hairs represent the same curious anomaly as in the cases originally described by Walter Smith, and subsequently by M'Call Anderson and others. By the term erythrasma is understood the development of dark, red-brown patches on the skin of the scrotum and thighs, which are covered with fine branny scales.

Dr. Payne figures the parasite which he believes to be the cause of the affection. It consists of a series of jointed threads, the segments of unequal length and thickness. The proof, however, of the causal connection is not quite complete.

"Granuloma fungoides," the remarkable disease first observed by Alibert in 1832, and styled by him "mycosis fongoide," is more fully treated, and is illustrated with plates and a coloured drawing. In its early stage the diagnosis is difficult or impossible, and one of the cases reported at Vienna was found to have been diagnosticated and treated by Hebra several years before as eczema. It always commences as red patches upon the skin of an erythematous or eczematous type. Dr. Payne relates an interesting case of this rare disease, which at first closely resembled a case of leprosy. He was unable to detect any micro-organisms.

Transactions of the American Dermatological Association at its Thirteenth Annual Meeting held at the Boston Medical Library, Boston, Mass., September, 1890. *Official Report of the Proceedings, by the Secretary,* GEORGE H. TILDEN, M.D. New York. 1889. Pp. 80.

THIS pamphlet is the record of the meeting of the above Association held last year in Boston under the Presidency of Dr. J. E. Graham, of Toronto, and contains much of interest to dermatologists. The President opened the proceedings by the delivery of a suggestive address on the prevention of infective diseases, notably syphilis and leprosy. As regards the former he is strongly in favour of the system of registration and periodical examination of prostitutes, basing his views on the results of preventive legislation when thoroughly carried out, and we must also endorse his subsequent statement that such laws, "unless well administered, had better not be placed in the Statute Book." He refers to the benefits of the Contagious Diseases Acts in England, as testified before the Royal Commission in 1870, and the evils resulting from their abeyance through the action of a certain irrational and fanatical party. As regards leprosy, Dr. Graham made the startling statement that the number of cases in North America has increased five-fold within the last ten years. This result must, however, be largely due to the influx of Chinese or other foreign elements in the population, but it is surely sufficient to call for some thorough system of inspection of immigrants by competent authorities. This might profitably occupy the attention of English sanitarians also, in view of the recent scare about leprosy.

An interesting discussion on herpes zoster was introduced by Dr. Greenhough, of Boston, who found from his analysis of sixteen years' practice that the ratio of zoster to other skin diseases was about 1½ per cent., and the incidence as regards sex, 55 per cent. males to 45 per cent. females, while 56 per cent. of all cases occurred in patients under twenty years of age. Dr. Fox stated that he has found that the use of the galvanic current in cases of zoster associated with neuralgia not only relieves the pain permanently but also cuts short the duration of the attack. Amongst other subjects discussed we may mention Hebra's prurigo, and "mercurial eczema," the latter well known to surgeons from the use of too strong corrosive-sublimate (or carbolic) dressings, and hardly deserving a specific name. Dr. Klotz, of New York, gave his experiences of "intra-muscular injections of *insoluble* mercurial salts in syphilis," the idea seeming to be that a slow absorption would thus take place and overloading of the system be prevented. The results, however, are not encouraging. The gluteal region was selected for the injection. In two cases *abscesses* formed; in another "softening of a nodule without breaking;" in seven "*painful swelling* more or less extending along the thigh," which necessitated prolonged rest in bed, but subsided without suppuration. "Severe pain" is recorded five times as well. These results agree in the main with those we have ourselves observed in Vienna, and with those recorded by other experimenters, and we fail to see the ground of submitting patients to the risk of these inconveniences (if not actual dangers) when the disease can be with absolute certainty controlled by milder and quite as effectual methods. We believe Neumann, at one time a strong advocate of its virtues, has now practically abandoned the method, and we are glad to find the consensus of American opinion also strongly opposed to it. Dr. Heitzmann, of New York, characterised it as a "cruel treatment," and Dr. Morrow, of the same city, as a "reserve method" to be employed only in cases where mercury cannot be tolerated in any other way.

Dr. Sherwell, of Brooklyn, recommended a new treatment of scabies by the application with moderate friction of powdered sulphur, and the sprinkling of the bed-clothes with the same substance. He found this especially useful in cases where a whole family was likely from the history and surroundings to become affected even if the disease had only shown itself in one or two members, and he claimed for it equal efficacy with other methods and greater cleanliness. Dr. Sherwell also dealt with the great frequency of eczema of the anus as the result of fissures in that region and the discharge of irritating gases and secretions. He treats it by gradual dilatation of the sphincter and the local application of various stimulating powders. Dr. Bulkeley recommended the application of solutions of nitrate of silver in nitrous ether in gradually increasing strengths (from 5 to 20 grains to the ounce), a treatment which will hardly recommend itself to surgeons in this country under whose care such cases generally come.

Dr. Heitzmann introduced a discussion on the "dermatitis papillaris" of Kaposi, and we are glad to observe that he is inclined to regard it as a form of keloid and not as a distinct pathological entity. In the discussion which followed, both Drs. Fox and Bulkeley expressed very strong views as to the origin of all keloid in scars, even so minute that they escaped the patient's remembrance, the latter observing—"I believe that all the keloids are of traumatic origin, and there is no such thing, in my judgment, as spontaneous keloid"—an opinion which we thoroughly endorse.

Other discussions of some interest took place on dermatitis herpetiformis and urticaria pigmentosa, but from the absence of the original papers we are unable to express or criticise the author's views. This is a serious drawback to the value of this Report, as in the majority of instances only the discussion on the paper, and not the paper itself, is reported, so that one is compelled to draw one's conclusions as to the drift of the author's paper solely from the remarks of the subsequent speakers. This detracts very gravely from the value of the Transactions, and will, we hope, be rectified in subsequent issues. A useful statistical table of the cases of skin diseases treated in the seven leading cities of the States during the previous year concludes the Report, though we cannot congratulate the compiler on the method of grouping adopted. Taken as a whole the Report is a fair mirror of the present state of dermatology in America, though the unavoidable absence of some of the leading specialists robs it to some extent of its interest.

Selected Subjects in connection with the Surgery of Infancy and Childhood. Being the Lettsomian Lectures delivered at the Medical Society of London, 1890. By EDMUND OWEN, M.B., F.R.C.S.; Senior Surgeon to the Hospital for Sick Children, Great Ormond-street; and Surgeon to Saint Mary's Hospital, London. (Published by request.) London: Baillière, Tindall, & Cox. 1890.

THE elaborate title of this pamphlet tells its scope. The Lectures are pleasantly written and give the author's experience of the difficulties met with in the surgical treatment of children's diseases; and, although he gives us no original ideas, he gives an excellent account of the most approved of the modern methods, and altogether the book is readable and instructive, especially for those who have much to do with the surgical diseases of childhood.

Peptonémie et Peptonurie Expérimentales. Par MM. O. Boulengier, A. Denaeyer, et C. Devos. Mémoires Couronnés et autres Mémoires publiés par l'Académie Royal de Médecine de Belgique. (Troisième fascicule). Bruxelles: F. Hayez. 1890. 8vo. Pp. 42.

The authors of this monograph have endeavoured to elucidate certain questions connected with the introduction of peptones into the animal organism, and for this purpose have undertaken an exhaustive series of experiments, the results of which are now before us. Contrary to the general opinion that peptones injected into the circulating blood lead to toxic symptoms, and even death, they assert, as the outcome of their observations, that *pure* peptone is not toxic, but is eliminated by the urine, and that 5 grammes per kilogramme of body-weight may be intravenously injected without fatal result, whereas Bouchard fixed the limit at 1·69 grammes per kilo. To explain the immunity from poisoning which might result from the absorption of peptones from the gastro-intestinal tract in normal digestion, it has been asserted that the liver possessed the function of preventing any peptones from gaining the systemic circulation which had not been previously transformed in the portal circulation. In contradiction of this it is here stated that, "the liver exercises no power of stopping or of transforming peptone injected into the portal vein." This experimental proof agrees with the conclusions arrived at by Mulheim from simple deductions.

Other conclusions arrived at by the authors are:—Peptone introduced into the system by any other route than the gastro-intestinal mucous membrane, is not assimilated, but is eliminated principally in the urine—peptonuria. Intravenous injections of peptone, practised with a therapeutic aim, are irrational and useless, not to speak of the danger inseparable from the operation.

In a healthy individual enormous doses of peptone may be taken by the mouth, but no peptonuria results.

The phenomena of peptic intoxication (peptonæmia) are due to an alteration of the peptone induced by microbic fermentation and the development of ptomaïns. A curious result obtained is the greater toxic power possessed by the peptone obtained from egg-albumin in comparison with that obtained from meat-albumin. Altogether the memoir will well repay perusal by those who are interested in the physiology of the digestive mechanism.

The Care of the Skin in Health and Disease. By F. AUGUSTUS COX, M.B., Lond.; Physician to the Western Skin Hospital. London: Alexander & Shepheard. 1890. Pp. 56.

IN this little work, evidently intended for lay readers, the author has collected a certain amount of useful information on the subject of personal hygiene. Most space is devoted to the various kinds of baths and bathing, and subsequent sections deal with soaps, cosmetics, clothing, exercise, diet, the hair and nails. While containing nothing original or specially noteworthy, it is possible it may convey something new to general readers; and if it can succeed in impressing upon them the necessity of greater attention to matters of cutaneous hygiene—a point on which we are somewhat sceptical—it will not have been written altogether in vain.

REMARKABLE FECUNDITY.

DR. ANCARANI (*Gazz. Ospit. Milan*, Oct. 13th, 1889) reports a case of six children at a birth; and Dr. J. De Leon, of Ingersoll, Texas, reports (*Dietetic Gazette*, Vol. VI., No. 4) a case of four children at a birth. [Since 1757 only one case of quadruplets has been recorded in the Rotunda Lying-in Hospital, of this city. The case occurred during Dr. Clarke's mastership. There is no recorded case of sextuplets in Ireland. Paré, Garthshore, Merriman, Ramsbottom, and Churchill, give statistics of plural births. Quadruplets occur about once in a million confinements, and sextuplets once in one hundred million.]

DEATH FROM SUSPENSION FOR LOCOMOTOR ATAXY.

La France Médicale, January 24, 1890, contains an account of the death of a man, forty-eight years of age, three days after suspension for the relief of locomotor ataxy. It was the fifth time he had been so suspended, and from the four previous ones he apparently derived great relief, both from the anæsthetic symptoms and from the ataxy. The fifth suspension, which proved fatal, lasted only forty seconds.

PART III.

SPECIAL REPORTS.

REPORT ON PRACTICE OF MEDICINE.

By **Henry T. Bewley**, B.A., M.D., Univ. Dubl., F.R.C.P.I.;
Assistant Physician to the Adelaide Hospital, Dublin.

INVESTIGATIONS ON THE DISTRIBUTION OF TUBERCLE BACILLI OUTSIDE THE BODY.

In the *Berliner klinische Wochenschrift* for July 7, 1890, is an interesting article by Prof. Baumgarten reviewing the above-named work by Dr. Cornet. The importance of such investigations is evident; until it is known how tubercular disease is disseminated protective and preventive measures will not attain to any high degree of efficiency.

In most cases of phthisis the bacilli are inhaled into the lungs. Cornet, therefore, examined under various circumstances the air, or, what is for this purpose the same thing, the dust that settles down in still air. This dust he mixed with some sterilised fluid and injected into the peritonial cavity of rabbits and guinea-pigs. In cases in which tubercle bacilli were present in the dust abdominal tuberculosis developed itself in the animals.

The following are the most important results of Cornet's investigations:—

(1.) In the dust of rooms of private patients suffering from consumption who were careful always to expectorate into a spitting-cup, and never into a handkerchief or on the floor, tubercle bacilli were *never* found; if, on the contrary, they expectorated into a handkerchief or on to the floor, bacilli were *always* present in the dust.

(2.) The dust of most consumptive wards in hospitals contained tubercle bacilli.

(3.) The air of two policlinics, of a theatre in a pathological institute, of the dormitory in an orphan-house, of several streets, and of several public buildings, was found free from bacilli.

Tubercle bacilli are incapable of multiplying and flourishing except in the tissues of men and other animals. Many cases of tuberculous disease are due to the ingestion of bacilli in meat and especially in milk; but in most cases of consumption the virus is derived from other consumptive patients. The breath of such patients does not contain bacilli—the sputum is the means of infection. From moist sputum bacilli can never get into the air; it is when the sputum becomes dry and is converted into a fine powder that it is dangerous. It can easily be understood that as long as the sputum is expectorated into a spitting-cup the danger of infection is slight; but if the sputum is deposited on the floor or in handkerchiefs, towels, &c., it soon dries, and movement and friction—*e.g.*, shaking and using the handkerchief—readily convert it into powder which can float about in the air.

When sputum is expectorated in the open air, as in streets, the danger of infection is slight. Rain and damp weather keep the sputum moist and harmless; and if it does dry and become pulverised the winds dilute it to an infinite degree and blow it away.

The practical rules which Dr. Cornet lays down are:—Consumptives should never expectorate into a handkerchief or other cloth, or on to the floor, but should always use a suitable spitting-cup, in which some fluid may be kept in order further to prevent the chance of drying. If expectoration into a handkerchief is ever unavoidable, the handkerchief should be at once boiled and washed. Consumptives should not be kissed; if this must be, the forehead or cheek should be chosen rather than the mouth. Spoons, glasses, &c., used by consumptives should be carefully cleaned.

HYDRONAPHTHOL IN THE TREATMENT OF ENTERIC FEVER AND DIARRHŒA.

Dr. J. Mitchell Bruce treated five cases of typhoid fever with this drug. All did well, though two of them were very prolonged cases. He found that diarrhœa ceased soon after the drug was given, and the fæces and breath ceases to have an offensive smell. In two cases, however, the hydronaphthol appeared to cause nausea, so that it had to be stopped as soon as the diarrhœa was checked. Dr. Bruce recommends 3 or 4 grains every two hours while diarrhœa is present, and the same amount every three hours as long as pyrexia lasts.

In the diarrhœa of children, in tuberculous and in dysenteric diarrhœa, it was also found useful. The dose (the age of the patient being taken into consideration) was the same as in the typhoid cases.—*Practitioner*, July, 1890.

PERNICIOUS ANÆMIA.

Dr. Wm. Hunter contributes to the *British Medical Journal* for July 5 and 12, 1890, an interesting paper on this disease based on a case which was under his care. The paper is too long to refer to with any detail; we can only touch on the most salient points.

The essential nature of the disease is an abnormal and excessive destruction of blood. This hæmorrhage is evidenced by: (1) a largely increased excretion of urinary pigments. There was a large quantity present of one pigment which is called, by Dr. MacMunn, "pathological urobilin," and which is most usually found in the urine during the absorption of large extravasations of blood—*i.e.*, under conditions in which an extensive destruction of blood is going on; (2) A large amount of blood-pigment and iron was found in liver, kidneys, and spleen. In the urine during life granules of blood-pigment were occasionally found enclosed in renal epithelium cells; (3) There was a greatly-increased excretion of iron in the urine.

Dr. Hunter further considers that this blood destruction is due to the action of some special poison, "probably of a cadaveric nature produced within the gastro-intestinal tract," and absorbed with the blood. He found that the putrefactive processes in the intestine were abnormally increased, as evidenced by the large excretion in the urine of aromatic compounds derived from the putrefactive disintegration of proteid material, such as indol, phenol, scatol, and cresol. He found that the patient generally improved when this abnormal putrefaction diminished. He also isolated from the urine several ptomaïns which point to the presence of some abnormal putrefactive process, such substances not being formed by ordinary intestinal putrefactive bacteria.

Another evidence that the disease was caused by some specific poison consisted in the fact that the patient suffered from several attacks evidently of a toxic nature, characterised by drowsiness, contracted pupils, slight fever, and sweating.

With regard to the part of the alimentary canal in which the poison was formed, Dr. Hunter considers that the stomach was the main seat of abnormal action. In this were manifested the signs of an inflammatory process, partly of old standing and partly acute.

The following suggestions towards a rational treatment are made:—

(1.) If any abnormal condition of the alimentary canal can be detected it should, if possible, be removed. Some cases have recovered after intestinal worms had been expelled.

(2.) When no such removable cause exists, washing out the stomach may be useful.

(3.) Intestinal antiseptics to hinder the activity of injurious micro-organisms: beta-napthol was employed by Dr. Hunter in 5-grain doses thrice daily. It was not, however, used until the patient was almost moribund.

(4.) A farinaceous diet appeared to diminish the amount of blood destruction, on the other hand a nitrogenous diet increased it. Dr. Hunter also suggests the advisability of employing a purely milk diet.

ACUTE PERITONITIS FOLLOWING VULVO-VAGINAL CATARRH IN A GIRL SEVEN YEARS OLD.

Dr. F. Huber, New York, records an interesting and unusual case. The patient, an anæmic and delicate child, usually subject to constipation, suffered from a purulent vulvitis and vaginitis, probably gonorrhœal in nature. No alarming symptom presented itself for several days, then she suddenly sank into a condition of collapse, with subnormal temperature. Pain in the right iliac fossa was now acutely felt, and the abdominal muscles in this region were rigid. Next day there was much vomiting, abdominal pain and tenderness increased in spite of morphin, tympanites set in, the general condition became worse. From the previous constipation, the sudden onset, the collapse, and the pain and tenderness in the right iliac fossa, both Dr. Huber and several consultants whom he called in came to the conclusion that the case was one of acute peritonitis, probably due to perforation of the vermiform appendix. Abdominal section was performed four days after the acute symptoms had set in; purulent peritonitis was found; the vermiform appendix was normal; but the right Fallopian tube was inflamed and thickened, and was evidently the channel by means of which the infecting virus had gained entrance to the peritoneal cavity. The abdomen was washed with warm water and closed up; but in spite of all the child died twenty hours after the operation.

In cases of peritonitis in little girls associated with vulvo-vaginitis, it is well to remember there may be a connection between the two affections.—*Transactions of the American Pediatric Society*, Vol. I., 1889.

PERITONITIS.

Fränkel states that his experiments show that chemical irritants, such as tincture of iodine, when free from bacteria, can, when injected into the peritoneal cavity, produce a sero-fibrinous exudation, never a purulent one. The exudation is at first free from bacteria, and quite odourless. After a time bacteria make their way from the intestine into the exudation, and cause it to develop a foul smell.

The bacteria could thus make their way through the wall of an intestine that was merely inflamed, and was by no means gangrenous or seriously injured.—*Münchner med. Wochenschrift*, 1890, No. 2.

OREXIN HYDROCHLORATE AS A STOMACHIC.

Prof. F. Penzoldt warmly recommends this substance, stating that it increases the appetite and stimulates all the functions of the stomach. After a dose of 7 grains he found that a strong feeling of hunger rapidly manifested itself; and he states that the duration of stomach digestion is shortened by about half an hour. He considers that its use is indicated in the case of patients who have undergone severe operations, in cases of commencing phthisis, and chlorosis. No bad effects whatever were noticed unless very large doses were given.—*Therapeutische Monatsheft*, 1890.

In a later number of the same journal, however, Dr. George Müller (Berlin) states that he has employed orexin in several cases, but has not found any good result therefrom.

HÆMOPHILIA.

Dr. Max Fischer believes that this disease is produced by changes both in the quality and in the quantity of the blood. These changes are caused by an increased activity of the blood-forming organs, especially of the red marrow; too many red corpuscles are found, and their proportion to the white corpuscles is increased above the normal. As well as, and, possibly as a result of, these changes in the corpuscles, the volume of the blood is increased, and consequently the blood-pressure is raised.

Fischer contrasts hæmophilia with leukæmia. In the latter the proportion of the white corpuscles is increased; in the former that of the red.

This view of the disease is at present mainly a hypothesis Many cases will need to be investigated before the theory can be considered to be proved.—*Inaugural Dissertation*, Munich, 1889.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Samuel Gordon, M.D., F.R.C.P.I.
General Secretary—W. Thomson, M.D.

SECTION OF OBSTETRICS.

President—S. R. Mason, M.B., F.R.C.S.I.
Sectional Secretary—Andrew J. Horne, F.R.C.P.I.

Friday, April 18, 1890.

Dr. Atthill in the Chair.

Exhibitions.

Dr. Macan exhibited a cyst of the broad ligament. It was taken from a woman who had been sent to him by Dr. Holmes, of the Army Medical Staff. She was unmarried and was suffering from a tumour, which, however, was not giving her any great trouble. On examining her he found the abdomen very tense, but could not say that he found fluctuation. On examination per vaginam he found the two ovaries in the posterior *cul-de-sac.* He examined under ether and found the condition much the same, except that there was no connection between the tumour and the uterus. He felt then unable to make a diagnosis. The very long pedicle which this tumour had put out of his mind the idea that it could be a par-ovarian cyst; therefore he commenced an operation, being in doubt as to the nature of the tumour. Diagnosis of a par-ovarian cyst had been made by tapping and finding the typical fluid, and by finding the two ovaries as soon as the tumour had collapse. Some of the anatomical characteristics of the par-ovarian cyst were very well seen in the present specimen. There was the very fine peritoneal covering which shed off very easily; and it was easy to enucleate the tumour if necessary. The tube ran an abnormal course close to the walls of the tumour. The ovary on one side was greatly enlarged and full of cysts. The specimen was now so much contracted that it gave no idea of what the size of the ovary was at the time of removal. The ovary was degenerated; and on examining the other ovary he found it in the same condition; but having a strong feeling against taking away both ovaries from an unmarried woman he did not remove it. To a certain extent his action had not been justified by results, for she came to him the other day, not having menstruated for a month; and on examination per vaginam he found that the remaining ovary had greatly increased in size since the operation. The fluid which he found in the cyst was of the typical clear character. The interest of the case lay in the fact of the two ovaries having been found before the operation. The tube went an enormous distance into the walls of the cyst.

Dr. Macan also exhibited diseased tubes and ovaries, which he had removed from a woman in Sir Patrick Dun's Hospital. Six weeks ago she came to the dispensary connected with the hospital looking very ill and complaining of great abdominal pain. On examination he felt an elastic fluctuating tumour, separate from the uterus, on the right side, and he diagnosticated an ovarian tumour. She was put under ether in order to endeavour to ascertain the connection between the tumour and the uterus. He was not satisfied about it, and felt something like an ovary at the bottom and the tumour on the top of it. Yesterday week abdominal section was made and a hydro-salpinx was found and tapped. It was full of adhesions and bands, which extended in all directions; and he drew out what at first he thought was an ovary, but which turned out to be the tube. He separated the ovary from a lot of adhesions and removed the whole thing. He had never had a case like this in the Rotunda Hospital. This woman had a history of gonorrhœa. She had made the ordinary recovery after abdominal section.

Mr. L. H. Ormsby exhibited a large multilocular ovarian cyst. The cyst was of the ordinary character—the only thing remarkable about it being its very great size. The removal was very easily effected. There was a great deal of solid matter on the right side of the tumour; but there were also a number of cysts, and having tapped these he got the tumour out through a remarkably small incision. The patient had progressed very favourably since.

Dr. W. J. Smyly exhibited two ovarian tumours, both multilocular.

Dr. W. J. Smyly also exhibited a sterilising oven for disinfecting instruments. It could be heated up to 300° or 400° Fahrenheit, and the instruments were not injured by it at all.

Notes on Three Cases of Laparotomy.

Dr. Atthill, in opening a discussion on laparotomy, detailed the particulars of three typical cases. In the first all the signs and symptoms of an ordinary multilocular ovarian cyst were present, fluctuation being distinct from the umbilicus to within an inch of the pubes and nowhere else; but on opening the abdomen the case proved to be one of malignant disease, a mass of colloid growth being situated behind the uterus, which was healthy, the fluid in front being serous, enclosed between the intestines, which were matted together posteriorly to the abdominal wall. As much as possible of the colloid growth was removed. The patient made a rapid recovery, and enjoyed greatly-improved health for eight months, after which her condition began to deteriorate.

In the second case, that of a lady aged thirty, who suffered from alarming menorrhagia, doubt existed whether it was one of fibrocystic disease of the uterus, or an ovarian cyst complicated by the existence of a uterine myoma; the latter, which was deemed the most probable, proved to be correct. A large myoma, which could not be enucleated, was found to occupy the whole fundus of the uterus. In view of the dangerous hæmorrhages from which this lady suffered, both ovaries were removed along with the cyst; the result has been very satisfactory.

The last case was one in which oöphorectomy was practised in an unmarried lady, aged about twenty-eight. For six years previously she had suffered from pain, referred to the ovarian regions. This, notwithstanding treatment, had gradually become worse, till she was unable to leave her room and seldom her bed. On examination under chloroform the left ovary was found to be as large as a hen's egg, and the tube to be dilated. The left ovary also was enlarged to a minor degree. Both ovaries were removed. Recovery was very tedious, but after the lapse of six months her state was satisfactory. She seldom suffered any pain unless she over-exerted herself; had regained her appetite, and was able to resume her avocation—that of a teacher.

Dr. Atthill pointed out that the two first cases exemplified the difficulty not unfrequently met with in making an accurate diagnosis in cases demanding operation. Though both patients were examined under chloroform, doubt as to the exact nature of the case existed in both till the abdomen was opened. With respect to the third, it illustrates the advantage to be derived from oöphorectomy in a carefully-selected case. The life, in the case of the patient referred to, was one of incessant and intense suffering, a burden to herself, her relatives and attendants; but Dr. Atthill insisted on the necessity of these cases being selected with the greatest care, as otherwise a useless, unnecessary, and objectionable operation is performed, and one calculated to bring abdominal surgery into disrepute; and in his opinion the cases demanding it were rare.

Dr. Alfred Smith asked would it have been possible, in the second case, to enucleate the fibrous tumour instead of taking away the second ovary?

Mr. Ormsby said these cases were very interesting. The first proved the errors of judgment that might be fallen into as to the character and formation of these abdominal tumours. He thought it was better, in cases like the present, to make the diagnosis after the abdomen had been opened than before it. He wished to ask Dr. Atthill whether, in the case in which both ovaries were removed, the lady afterwards menstruated? He was under the impression that when both ovaries were removed there was always a cessation of menstruation afterwards.

Dr. More Madden said he dissented from the observation of Dr. Ormsby that it was better to make a diagnosis after abdominal section than before it. There were a great many cases of ovarian tumour in which no abdominal section was necessary.

Dr. Byrne said, with regard to Dr. Atthill's cases, he (Dr. Byrne) thought that he did exactly what was right in each of them; and in one of them, the reasons he had given for removing both ovaries were quite sufficient.

Dr. Bagot asked whether, in the case which Dr. Atthill found to be malignant, there were any outward and visible signs of malignancy such as large veins; also whether the patient suffered much pain before the operation, and whether her present condition was at all like that in which she was previous to the operation.

Dr. W. J. Smyly said Mr. Ormsby's statement bore a distant resemblance to one made by Mr. Lawson Tait—viz., "Don't be too cock sure of your diagnosis." It was a strong proposition to say that a man could not perform an operation so well when he did not know what he was going to do as when he had formed an opinion as to which side the tumour was on, the nature of the pedicle, &c. Dr. Atthill's malignant case had turned out a wonderful success; but from what he (Dr. Smyly) had seen of malignant tumours in the abdomen he should be inclined not to touch them at all. No matter how simple they were in appearance, they were certain to be associated with more disease in other parts; the operator was tempted to go from one part to another; and most of them had seen awful disasters on the operating table arising from following malignant tumours which seemed at first to be insignificant and easily removed. Therefore if he should find a malignant tumour he would be very much inclined to close up the abdomen again without trying to remove it.

Mr. O'Callaghan was of opinion that where malignant disease was found on abdominal section, the best practice was at once to shut the abdomen up, and have done with the operation. With respect to the case in which Dr. Atthill removed the two ovaries, he (Mr. O,Callaghan) thought it would have been wiser to have removed the two appendages entirely, for afterwards there was considerable pain and hæmorrhage. The same remark applied to the third case.

Dr. Macan said attempts to remove malignant disease in the abdomen were subject to exactly the same conditions as held good in attempts to remove it from any place else. When the abdomen was opened and malignant disease was found, the duty of the operator was to try and empty out as much of it as he could; but the man who attacked a malignant growth without endeavouring to see how much of it he was likely to be able to remove, and how much of it he might have to leave behind, did not know his business. He should examine all round and make a plan of the operation before he began it; but once he found a malignant growth he should remove the whole thing if possible. To leave any malignant matter behind that could easily be taken away by a ligature was a thing that he could hardly conceive to be justifiable. Therefore to say that the moment they found malignant disease they should shut up the abdomen was altogether contrary to his ideas. If it was circumscribed and pedunculated it could be removed without hesitation. The diagnosis depended greatly on the amount of serous fluid in the abdomen compared with the size of the tumour. Dr. Atthill's second case opened the question as to whether removal of the ovaries really stopped menstruation. He had on the agenda paper a case in which he believed the woman had three ovaries. Two had been removed and she afterwards menstruated; and then the fibrous tumour which she had went on growing, and on an operation they found a third ovary. With respect to the removal of the appendages, he was not aware that any other authority except Lawson Tait considered it to be absolutely necessary unless the tubes were diseased. What harm a healthy tube left behind in a woman's abdomen could do he could not conceive. As to menstruation being dependent on the tubes, he thought that was an exploded idea except in the Birmingham school. Dr. Atthill had stated that in the third case he found the two ovaries that he removed to be diseased. When ovaries were removed they should be examined, in order that the Section might know what the enlargement meant. Every ovary that was as big as the tip of one's little finger was not to be removed on that account. An ovary might be very large without being diseased. Where there was malignant disease exploratory incisions were as dangerous as any others. With reference to Mr. Ormsby's observation, he (Dr. Macan) thought that diagnosis was the chief thing. In the majority of cases it required a great deal of experience to make a good diagnosis; and in such cases as those under discussion, if the surgeon had not the gynæcologist to help him he would be very likely to get into trouble, even though opening the abdomen should not cause the woman to die.

Dr. Atthill, in reply, said he disbelieved in the occurrence of menstruation after the removal of ovaries. He did not believe that menstruation depended on the tubes; at the same time, whenever he removed an ovary he endeavoured to remove as much of the tube as he could. In both of the cases detailed in his paper he thought he had removed the tubes perfectly. The first of the ovaries that he removed was not got at very easily, and he was not sure that he removed everything as perfectly as he wished: If on opening an abdomen the operator found that he had to deal with a mass of malignant disease, to interfere with such a tumour was, in his (Dr. Atthill's) opinion, as a rule, most injudicious. He would close the abdomen as fast as he could. But in his case he was very far advanced in the operation before he arrived at that diagnosis. When he first met the peritonitic fluid he thought that the cyst had formed as the result of the matting together of the intestines from the sharp peritoneal attack which the woman had had a few months previously. When he came upon the second cyst he thought it was the true cyst; but it ruptured on manipulation, and what it was he did not know. He believed it must have been malignant. But it was so thin that his finger went through it as if it had been blotting paper; and he believed that, for the first time, and not until then, he discovered that he had a mass of soft malignant cancer to deal with. He found that it was only in an incipient stage. The whole mass was not larger than a tumbler; and it came away freely and without much hæmorrhage. He cleared it all away and did not leave a scrap of malignant disease behind. That he effected the removal pretty perfectly was proved by the fact that the patient had enjoyed health for ten months. If it had been left alone he believed she would have died. But he did not advocate interfering with malignant disease in the abdomen, or in any organ, as a rule. He dealt with the case in question to the best of his judgment and on the spur of the moment. One should be guided by the circumstances of each case. The most important question was the one raised by Dr. Smith, as to why, knowing that the lady wished to have a family, he did not consider the advisability of removing the fibrous tumour instead of the ovaries. He had no option in the matter. The whole uterus was very much enlarged. The anterior surface of it projected up behind the tumour, and in order to remove the latter he would have had to go into the cavity of the uterus. He thought there was more than one fibrous tumour in the uterus, and the case was not one for any attempt at enucleation.

SECTION OF STATE MEDICINE.

President—A. W. Foot, M.D., F.R.C.P.I.
Sectional Secretary—E. MacDowel Cosgrave, M.D., F.R.C.P.I.

Friday, April 25th, 1890.

The President in the Chair.

The Infectious Diseases (Notification) Act, 1889.

Dr. Cosgrave read a paper on the Infectious Diseases (Notification) Act and its extension to Dublin. Having detailed the favourable impression made by a two years' personal experience of the working of compulsory notification in Huddersfield, the author dealt with the various objections made to compulsory notification. Breach of confidence might apply to voluntary notification, but once notification is required by the Legislature there is no breach of confidence, but the notification is put on the same footing with a certificate of cause of death or of successful vaccination. Dr. Cameron, of Leeds, has shown that voluntary notification has dealt with only from one case in five to one case in three, and then often after the power of doing good is gone. The small fee is objectionable from a medical man's point of view, but a guinea-fee would be decidedly objectionable to the ratepayers. The Act came into force in Dublin on March 1st, 1890. Its success will depend upon the skill and tact of the sanitary officials and upon the hearty co-operation of the medical men. The sanitary officials ought to be skilled and to be required to pass an examination under some independent body before being appointed.

The Act is already in force amongst three-fourths of the population of Great Britain, and the medical officers of health have generally reported in its favour.

The PRESIDENT said it was one thing for the Legislature to lay down a scheme for discovering the causes of disease, tracking its sources and stamping it out, but it was another to carry out that scheme successfully; and in his opinion the workability of compulsory notification would depend on the general practitioners. He missed from the Act the salutary provision of insisting on having observation wards for the reception of cases of doubtful diagnosis, such as were at present attached to some of the general hospitals. It would, he thought, be actionable if a person erroneously notified as suffering from diphtheria or scarlatina were bundled off to an hospital for infectious diseases and there got one of those infectious diseases. Another blemish of the Act was that it was not of universal application.

DR. WILLIAM MOORE was glad to learn from Dr. Cosgrave's personal experience that compulsory notification was not in the slightest degree irksome. He regarded the system as being of enormous advantage. The probability of the advantage of the system in epidemics of small-pox or scarlatina was indicated by the fact that in one outbreak forty cases were traceable to the existence of scarlatina in a milkman's shop. He deprecated the shabby treatment of the profession by the Legislature in awarding the miserable pittances of 2s. 6d. and 1s. as fees.

DR. GRIMSHAW, Registrar-General, said he had long been an advocate of the notification of infectious disease, and was glad, while agreeing with the condemnation of the paltry fees, that the only question now for discussion was, how the Act could best be worked. The principal difficulty turned on the question of removal to hospital of the cases notified without risk. There must always be the difficulty of mistaken diagnosis; and hence it was incumbent on the health authorities of the city to see that proper observation wards were provided for the reception of doubtful cases. Indeed he considered it would be little short of criminal neglect if such wards were not provided. The idea that people could not get two infectious diseases at the same time was dead and buried long ago; and, therefore, he thought the leaders of the medical profession should press upon the authorities the necessity of making provision for the difficulties of mistaken diagnosis. In Dublin the Registrar General's Department assisted the Public Health Department of the city most materially by furnishing the addresses of persons returned as having died from infectious diseases; and the hospitals assisted in like manner. Notification had been going on in Dublin in that kind of way for the past twenty years. He did not think there was any grievance in having to notify infectious diseases. As to the physician disclosing the patient's confidence, once compulsory notification became the law of the land, the question of confidence was at an end. Every medical officer of health whom he had spoken to testified to the diminution of disease as the result of notification. Assuming notification to be in force in the city, there was still the difficulty as regards the other side of the boundary, and until notification became universal the full advantage of the system would not be realised. Notification should be made as public as possible, so that the disease within a radius should be generally known, that precautions might be accordingly taken. That was the opinion of every speaker at the International Congress in London.

Mr. R. Montgomery thought that the opinion of the Section, as indicated in the remarks of the Registrar-General, should be communicated to the Dublin Corporation and the Board of Guardians, so that observation wards might be provided for doubtful cases.

Mr. Doyle was of opinion that the interests of general practitioners would suffer under the Act unless they were enabled to follow their cases into hospital. Even at present there were many cases of persons well able to pay who by going into hospital for operations were lost to the general practitioners. While he was not an opponent of compulsory notification, he would devise some means of avoiding the injustice of depriving general practitioners of their pay cases.

Dr. Cosgrave, in reply, said the public health authorities were bound to provide proper accommodation where it did not exist. In Cork-street Hospital observation wards were worked with great care to prevent the mixing of different infectious diseases. It was the fever wards in general hospitals that were so dangerous. He considered the smallness of the fee fixed by the Act a necessity, and suggested that those who did not care to take it might let it go to the Royal Medical Benevolent Fund.

The State Medicine Qualification.

Dr. Grimshaw read a paper on "The State Medicine Qualification." He said the question of the conditions under which qualifications in State Medicine should be conferred has recently come prominently before the profession, owing to the action taken by the General Medical Council at their meetings of May and November of last year (1889).

The circumstances under which the General Medical Council have taken action in the matter of qualifications in State Medicine are somewhat peculiar.

Referring to the section of the Medical Act of 1888, with reference to the registration of qualifications in State Medicine, he proceeded to state that the General Medical Council possessed these powers for two years before they took any action to exercise them, and it was apparently not until the Local Government Act of 1888 came into force that the Council thought it necessary to do anything in the matter. The eighteenth section of that Act, although a step in the right direction, appeared to him to be extremely weak.

Having quoted section 18 of the Local Government Act, Dr. Grimshaw observed that unless a district contains 50,000 persons according to the last published census, it is deemed unnecessary to require that the medical officer of health should have any special qualification for the discharge of his duties; so that people who have the misfortune to be members of a smaller community may have their arrangement for the prevention of disease under the medical charge of a person who has never given any special attention to this branch of his profession.

The only cause he could see for the Medical Council not taking early steps to carry out this part of the duty is the careless and weak way in which Parliament discharged theirs, and the date of 1892 as the commencement of the compulsory provision.

Whatever weakness Parliament may have shown in the enactment of section 18, it was quite clear, by the introduction of the provision regarding a minimum population of 50,000, and from the preceding sections of the Act, that it is intended that a scientific expert in sanitary science should be appointed to the important administrative post of medical officer of health for a large district, that he should devote his whole time to his duties, and should be well paid for his services.

Quoting section 17 of the Local Government Act of 1888 in support of his views, Dr. Grimshaw put the question—What have the Medical Council done towards providing such a high-class officer?

This question he replied to by quoting the well-known resolutions and rules of the General Medical Council already referred to, which he then proceeded to criticise. This he did by citing the report of the representatives of the four medical authorities in Ireland granting qualifications in

State Medicine. To these recommendations—which were signed by the Rev. Dr. Haughton, of the University of Dublin; Drs. C. Nixon and Dunne, LL.D., of the Royal University; Dr. J. W. Moore, of the Royal College of Physicians of Ireland; and Mr. J. K. Barton, of the Royal College of Surgeons in Ireland—Dr. Grimshaw concurred, stating that, in his opinion, the report very clearly and concisely expresses the defects in the procedure followed by the General Medical Council. The Council appeared to him to have misconceived the extent and nature of the duties required of a medical officer of health of a large district devoting his whole time to the work. Such an officer is, in his opinion, and in the opinion of most persons who have studied the question, essentially an executive and consulting officer, not one for the personal or individual carrying out of preventive measures and sanitary improvements. Two elements in the special curriculum required by the Medical Council point to their holding a view contrary to this; they require certificates of six months' practical instruction in a laboratory and six months' out-door sanitary work. There s not a word about what sort of laboratory the study is to be carried out in further than it is to be "approved of by the body granting the qualification." Is it to be in a chemical, physical, or bacteriological laboratory, or partly in each? If partly in each, the time for study is insignificant. If not in all, the education will be very incomplete. The Medical Council, in the opinion of some, thought of nothing but a chemical laboratory, and that the education was to be directed towards making the holder of a State Medicine qualification a public analyst. This, he thought, should not be so; the medical officer of health has too many and too various executive duties to perform to give the requisite time to the personal conduct of a chemical laboratory. As to the second requirement—that of a certificate of "out-door sanitary work"—he was at a loss to interpret the phrase, but it must refer to either inspection of nuisances or the study of engineering works. A medical officer of health should know how to inspect nuisances; he should also understand how sanitary engineering works are carried out, but it is not his duty to carry them out, or to inspect nuisances, except in rare cases. What, then, do the Medical Council mean by "out-door sanitary work?" Just like the laboratory work, it is left charmingly indefinite, and the result is that many have interpreted it to mean "inspecting nuisances;" others, taking a higher view of the subject, have interpreted it to mean out-door engineering works—sewage, water, gas, structure of buildings, &c. This certainly is not the interpretation he would put on the phrase—the certificate is to be given by a medical officer of health of a county or large urban district. Far wrong as he thought the Medical Council to be in their views about State Medicine qualifications, he could scarcely give them credit for being so foolish as to require a member of the medical profession to certify to engineering knowledge.

The Council do not make any specific demand for any instruction in such important subjects as meteorology, engineering, vital statistics, or law and medical jurisprudence. Why are all these left out? As has been properly implied by the Report of the Committee representing the Irish medical authorities, the Council do not seem to have taken much note of the Report of the State Medicine Committee of the Council of July 2nd, 1869. He fancied the names of Acland, Christison, Paget, Parkes, Rumsey, A. Smith, Stokes, Thomson, who formed that Committee, have been forgotten. They had left their opinions behind them in their Reports, and in the personal works of Rumsey—who has been justly styled the Father of State Medicine—Acland, and Stokes. All these authorities concurred in recommending that all the subjects he had mentioned should be comprised in the curriculum and examinations of candidates for State Medicine diplomas. These have grown vastly in their importance since 1869. Yet the Medical Council does not think so. A minimum qualification is to be provided to meet the requirements of section 18 of the Local Government Act for a medical officer of health fully qualified in State Medicine and fit to exercise the important functions of a medical officer of health of a district containing a population of 50,000 inhabitants or upwards. All of these interested in the efficiency of public health organisation pressed for the provision now found in section 18. He thought Parliament would have taken little notice of their efforts if they had known how little the General Medical Council required to be added to ordinary professional knowledge in order to provide a fully-fledged diplomate in State Medicine.

Dublin has a right to feel strongly on this subject. As Rumsey was the father of State Medicine in England, so Stokes was the father and founder of State Medicine diplomas in the United Kingdom. Dublin was the first University, and the King and Queen's College of Physicians the first medical corporation to provide such a qualification. In a little work entitled "National Health," by Dr (now Sir Henry) Acland, will be found "the substance of a lecture" delivered by him at the Royal College of Physicians of London, "at the request of the President and Council." In appendices to this lecture will be found an important extract from the proceedings of the Royal Sanitary Commission of 1871, and an important "Memorandum in reference to the Establishment of a Qualification in State Medicine in the University of Dublin," by Dr. Stokes, dated January, 1870.

These documents may be considered as the foundations upon which the *Profession* of State Medicine in the United Kingdom has been gradually developing for upwards of 20 years, and I much fear these foundations have been sapped by the action of the General Medical Council. Nearly all authorities seem to concur in the view that there should be two grades of qualifications in State Medicine—one for those district poor law medical officers who necessarily must combine many of the duties of health officers with those of attendance on the sick poor; such a qualification should also be required of officers of the Navy and Army, and resident officers of all public institutions, such as lunatic asylums, prisons, hospitals, &c.

He believed it would be found absolutely necessary to have these two classes of offices and two classes of diplomates to fill them. The Committee of the General Medical Council thought so too in the year 1869, and so did the Council of that day. So evidently did Dr. Stokes when he drew up his Memorandum for the *higher*, not, be it remarked, the lower qualification. He was sorry to say he thought the authorities of the University of Dublin seem inclined to take the lower as their ideal instead of the higher. They have reduced the standard required by candidates and have accepted the recommendation of the General Medical Council.

If the General Medical Council desire to create experts devoting their whole time to the work of medical officers of health over large areas, or to act as district inspectors, their programme is miserably insufficient. If it is for a district officer their standard is too high.

Dr. Grimshaw, in conclusion, suggested that for the lower qualification there should not be any curriculum of study required. The candidate might be allowed to present himself for examination at any time after he had completed his regular medical curriculum, and his diploma might be conferred at the same time, or immediately after he has received those in medicine, surgery, and midwifery required for registration under the Medical Acts. The candidate for this diploma should be required to answer at a special examination comprising hygiene, chemistry as applied to sanitary questions, elementary sanitary engineering—to be defined by syllabus; to show a slight knowledge of the law as regards nuisances, the spread of infective disease, &c.—all defined by syllabus. This qualification might be termed a Certificate in Sanitary Science, and should be a registrable qualification.

For the higher qualification, the candidate should be required to be a registered medical practitioner of two or three years' standing—he preferred three years. He should produce evidence of having studied law, engineering and architecture, vital statistics, geology and meteorology, as applied to State Medicine. The examination should extend over several days, and the classification of subjects of examination adopted by the University of Dublin may be taken as a good one. This qualification might be designated a Diploma in State Medicine.

The President was of opinion that there ought to be two qualifications, a higher and a lower, in State Medicine—a lower grade for the common-sense practical man, with a good nose, and knowing something of the rough diagnosis of infectious disease, and the higher for those who would be called on to advise in the weighty matters of social science.

Dr. William Moore held that the humblest in the community were entitled to the best advice; and he thought that the majority of the examining bodies had accepted the suggestions of the General Medical Council.

The Boarding-out System for the Insane.

Mr. Conolly Norman read a paper on the boarding-out of pauper lunatics. While asylums are a matter of necessity for a large number of the insane, they can never be made homes. Therefore, such lunatics as can live outside asylums will be happier and better if under suitable supervision than those who are incarcerated in public institutions for life. Economic and other considerations are of less consequence than the advantage that may accrue to the insane under favouring circumstances and under a well worked system of boarding-out. Mr. Conolly Norman briefly considered the working of the Gheel system and the Scotch boarding-out. He very strongly condemned certain features in Gheel—the boarding-out of dirty and semi-dirty patients; the boarding-out of patients in estaminets; the use of restraint; and the too-great liberty accorded to some better-class patients. The Scotch system affords a better model. Mr. Norman laid down the conditions necessary to render patients suitable for boarding, and the restrictions and safeguards under which such a system must be worked. He differed from the Scotch authorities in objecting generally to the boarding-out of epileptics. He referred to the special enactments of the Scotch law on this subject, and briefly to Mr. Trevelyan's Irish Bill, which did not become law, one object of which was to found a boarding-out system in Ireland.

Dr. William Moore said the increase of lunacy in the County Antrim was occupying the attention of a committee as regards the disposal of harmless lunatics, and the provision of further accommodation to meet the increase. The boarding-out plan suggested a means of providing for the harmless lunatics without incurring the cost of building a big asylum.

Mr. R. Montgomery said he had had experience of the success of the boarding-out system.

Mr. Doyle mentioned that the son of a patient of his own had spoken of Gheel in the highest terms from personal experience. The charge was £40 a year in his case.

Mr. Conolly Norman, in reply, said there was no doubt that Gheel had done very good work; but there was too much freedom there on the one hand and too much restraint on the other, and so it was not up to his ideal of the treatment of lunatics. He did not approve of sending lunatics to workhouses, as being institutions with all the faults of the lunatic asylums and very few of the virtues of an asylum.

The Section adjourned.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, September 6, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Aug. 16.	Aug. 23.	Aug. 30.	Sept 6.		Aug. 16.	Aug. 23.	Aug. 30.	Sept. 6.
Armagh -	10·3	5·2	5·2	10·3	Limerick -	14·8	12·1	9·4	6·7
Belfast -	21·8	24·7	25·1	21·6	Lisburn -	14·5	4·8	0·0	4·8
Cork -	17·5	23·4	9·7	18·8	Londonderry	25·0	33·9	33·9	16·0
Drogheda	12·7	8·5	33·8	16·9	Lurgan -	20·5	35·9	10·3	35·9
Dublin -	19·5	19·8	23·3	18·9	Newry -	10·5	7·0	7·0	10·5
Dundalk -	8·7	26·2	26·2	17·5	Sligo -	4·8	0·0	4·8	24·1
Galway -	16·8	30·3	20·2	16·8	Waterford -	18·5	18·5	13·9	18·5
Kilkenny	21·1	12·7	16·9	12·7	Wexford -	8·6	25·7	25·7	21·4

In the week ending Saturday, August 16, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 20·6), was equal to an average annual death-rate of 21·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·2 per 1,000. In Glasgow the rate was 21·4, and in Edinburgh it was 18·8.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 19·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·2 per 1,000, the rates varying from 0·0 in eleven of the districts to 6·7 in Galway—the 5 deaths from all causes registered in that district comprising 1 from measles and 1 from typhus. Among the 97 deaths from all causes registered in Belfast are 1 from measles, 4 from whooping-cough, 6 from enteric fever, and 7 from diarrhœa. The 14 deaths in Londonderry comprise 1 from measles, 1 from scarlatina, and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 196—97 boys and 99 girls; and the registered deaths to 136—64 males and 72 females.

The deaths, which are 30 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·1 in every 1,000 of the estimated population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 19·5 per 1,000. During the first thirty-three weeks of the current year the death-rate averaged 27·9, and was 0·9 under the mean rate in the corresponding period of the ten years 1880–89.

Fifteen deaths from zymotic diseases were registered, being 3 under the number for the preceding week, and 18 below the average for the corresponding week of the last ten years. They comprise 1 from measles, 3 from whooping-cough, 2 from enteric fever, 7 from diarrhœa, and 1 from dysentery.

Seven cases of enteric fever were admitted to hospital, being 4 below the admissions for the preceding week. Five enteric fever patients were discharged, 2 died, and 36 remained under treatment in hospital on Saturday, being equal to the number in hospital at the close of the preceding week.

Three cases of scarlatina were admitted to hospital; and 7 cases of that disease, 1 case of measles, and 1 of typhus remained under treatment on Saturday.

The number of deaths from diseases of the respiratory system is 16, being 2 under the average for the corresponding week of the last ten years, but 2 above the number for the week ended August 9. The 16 deaths comprise 7 from bronchitis and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, August 23, the mortality in twenty-eight large English towns, including London (in which the rate was 19·2), was equal to an average annual death-rate of 21·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·9 per 1,000. In Glasgow the rate was 20·9, and in Edinburgh it was 16·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 21·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·9 per 1,000, the rates varying from 0·0 in seven of the districts to 10·7 in Londonderry—the 19 deaths from all causes registered in that district comprising 1 from whooping-cough, 2 from diphtheria, and 3 from diarrhœa. Among the 110 deaths from all causes registered in Belfast are 1 from typhus, 2 from whooping-cough, 2 from simple continued fever, and 17 from diarrhœa.

In the Dublin Registration District the registered births amounted to 205—90 boys and 115 girls; and the registered deaths to 139—83 males and 56 females.

The deaths, which are 24 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·5 in every 1,000 of the estimated population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 19·8 per 1,000. During the first thirty-four weeks of the current year the death-rate averaged 27·6, and was 1·1 under the mean rate in the corresponding period of the ten years 1880-89.

Fifteen deaths from zymotic diseases were registered, being equal to the number for the preceding week, but 18 below the average for the corresponding week of the last ten years. They comprise 2 from measles, 1 from whooping-cough, 4 from enteric fever, and 7 from diarrhœa.

Seven cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week. Seven enteric fever patients were discharged and 36 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

Two cases of measles, 1 of scarlatina, and 2 of typhus were admitted to hospital. The number of cases of measles under treatment at the close of the week shows an increase of 1, that of typhus of 2, and the cases of scarlatina remain the same, compared with the number for the preceding week.

The number of deaths from diseases of the respiratory system is 20, being 1 over the average for the corresponding week of the last ten years, and 4 above the number for the week ended August 16. The 20 deaths comprise 11 from bronchitis and 5 from pneumonia or inflammation of the lungs.

In the week ending Saturday, August 30, the mortality in twenty-eight large English towns, including London (in which the rate was 19·6), was equal to an average annual death-rate of 20·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 16·8 per 1,000. In Glasgow the rate was 18·3, and in Edinburgh it was 12·3.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 21·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·9 per 1,000, the rates varying from 0·0 in eleven of the districts to 8·5 in Drogheda—the 8 deaths from all causes registered in that district comprising 2 from diarrhœa. Among the 112 deaths from all causes registered in Belfast are 3 from scarlet fever, 3 from whooping-cough, 1 from enteric fever, and 15 from diarrhœa.

In the Dublin Registration District the registered births amounted to 149—74 boys and 75 girls; and the registered deaths to 161—76 males and 85 females.

The deaths, which are 17 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·8 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 23·3 per 1,000. During the first thirty-five weeks of the current year the death-rate averaged 27·5, and was 1·1 under the mean rate in the corresponding period of the ten years 1880–89.

Thirty deaths from zymotic diseases were registered, being 15 in excess of the number for the preceding week, but 9 under the average for the thirty-fifth week of the last ten years. They comprise 2 from measles, 3 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 13 from diarrhœa. Eleven of the 13 deaths from diarrhœa were of infants under one year old.

Eight cases of enteric fever were admitted to hospital, being 1 over the number of admissions for the preceding week. Six enteric fever patients were discharged, 1 died, and 37 remained under treatment on Saturday, being 1 over the number in hospital on Saturday, August 23.

No cases of either scarlatina or typhus were admitted to hospital, and only 1 case of measles was received. Four cases of scarlatina, 3 of typhus, and 3 of measles remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 18, being 3 below the average for the corresponding week of the last ten years, and 2 under the number for the week ended August 23. The 18 deaths comprise 10 from bronchitis and 2 from pneumonia or inflammation of the lungs.

In the week ending Saturday, September 6, the mortality in twenty-eight large English towns, including London (in which the rate was 17·8), was equal to an average annual death-rate of 19·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·2 per 1,000. In Glasgow the rate was 21·6, and in Edinburgh it was 16·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 18·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·8 per 1,000, the rates varying from 0·0 in nine of the districts to 5·1 in Lurgan—the 7 deaths from all causes registered in that district comprising 1 from diarrhœa. Among the 96 deaths from all causes in Belfast are 2 from scarlatina, 1 from whooping-cough, 1 from diphtheria, 2 from enteric fever, and 5 from diarrhœa. The 29 deaths in Cork comprise 1 from diphtheria, 1 from enteric fever, and 3 from diarrhœa.

In the Dublin Registration District the registered births amounted to 159—84 boys and 75 girls; and the registered deaths to 130—70 males and 60 females.

The deaths, which are 40 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 19·2 in every 1,000 of the estimated population. Omitting the deaths (numbering 2) of persons admitted into public institutions from localities outside the district, the rate was 18·9 per 1,000. During the first thirty-six weeks of the current year the death-rate averaged 27·3, and was 1·2 under the mean rate in the corresponding period of the ten years 1880–89.

Only 13 deaths from zymotic diseases were registered, being 24 below the average for the corresponding week of the last ten years, and 17 under the number for the week ended August 30. They comprise 1 from measles, 4 from whooping-cough, 5 from diarrhœa (being 8 under the number of deaths from that disease in the preceding week), and 1 from dysentery.

Only 4 cases of enteric fever were admitted to hospital, against 8 for the preceding week and 7 for the week ended August 23. Five enteric fever patients were discharged and 36 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

Three cases of measles and 2 of scarlatina were admitted to hospital, but the admissions do not comprise any case of typhus. The only case of any of these three diseases admitted during the preceding week was 1 of measles. Five cases of measles, 6 of scarlatina, and 3 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 17, being 1 under the number for the preceding week and 3 below the average for the thirty-sixth week of the last ten years. The 17 deaths comprise 10 from bronchitis and 4 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N. Long.* 6° 15′ *W., for the Month of August*, 1890.

Mean Height of Barometer, - - -	29·879 inches.
Maximal Height of Barometer (on 31st, at 9 p.m.),	30·291 „
Minimal Height of Barometer (on 26th, at 4 50 p.m.),	29·269 „
Mean Dry-bulb Temperature, - - -	56·3°.
Mean Wet-bulb Temperature, - - -	54·0°.
Mean Dew-point Temperature, - - -	85·8°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·390 inch.
Mean Humidity, - - - - -	85·8 per cent.
Highest Temperature in Shade (on 4th), - -	74·8°.
Lowest Temperature in Shade (on 31st), - -	41·5°.
Lowest Temperature on Grass (Radiation) (on 31st),	35·5°.
Mean Amount of Cloud, - - - -	57·9 per cent
Rainfall (on 19 days), - - - -	2·799 inches
Greatest Daily Rainfall (on 22nd), - - -	·851 inch.
General Directions of Wind, - - -	N.W., W.

Remarks.

Except for a fine warm period extending from the 2nd to the 5th inclusive, and for a few isolated fine, but cool, days afterwards, this month proved showery, cold, and squally—the reduction of temperature after the 21st being especially remarkable. The prevailing wind was N.W. and temperature was 2·5° below the average. Happily, near Dublin there were no torrential rains, as in August, 1889, in which month 1·300 inches fell on the 10th and 1·942 inches on the 19th; but the frequency of the showers chilled the atmosphere and delayed the harvest.

In Dublin the mean temperature (57·2°) was decidedly below the average (59·7°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 56·3°. In the twenty-five years ending with 1889, August was coldest in 1881 (M. T. = 57·0°), and warmest in 1871 (M. T. = 62·0°). In 1885, the M. T. was only 57·1°; in 1879 (the "cold year"), it was 57·7°; in 1887, it was 60·3°; in 1888, it was 58·2°, and in 1889, 58·6°.

The mean height of the barometer was 29·878 inches, or 0·019 inch below the corrected average value for August—namely, 29·897 inches. The mercury marked 30·291 inches at 9 p.m. of the 31st, and fell to 29·269 inches at 4 50 p.m. of the 26th. The observed range of atmospherical pressure was, therefore, 1·022 inches—that is, a little more than an inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 56·3°, or 1·3° below the value in August, 1888 and 1889, and 1·5° below the value for July,

1890. Using the formula, *Mean Temp.=min.* + (*max.—min.* × ·47), the value was 56·9°, or 2·4° below the average mean temperature for August, calculated in the same way, in the twenty-five years, 1865–89, inclusive (59·3°). The arithmetical mean of the maximal and minimal readings was 57·2°, compared with a twenty-five years' average of 59·7°. On the 4th, the thermometer in the screen rose to 74·8°—wind, S.W.; on the 31st the temperature fell to 41·5°—wind, N. The minimum on the grass was 35·5° on the latter date. The rainfall was 2·799 inches, distributed over 19 days. The average rainfall for August in the twenty-five years, 1865–89, inclusive, was 2·825 inches, and the average number of rainy days was 15·5. The rainfall therefore, was slightly less than the average, while the rainy days were considerably in excess of the average. In 1874 the rainfall in August was very large—4·946 inches on 18 days—and in 1868 also 4·745 inches fell on, however, only 13 days; but the heaviest downpour in August occurred in 1889, when 5·747 inches were registered on 22 days. On the other hand, in 1884, only ·777 inch was measured on 8 days. In 1887, 1·520 inches of rain fell on 16 days, and in 1888, 1·270 inches on 12 days.

High winds were noted on as many as 11 days, and attained the force of a gale on two occasions—namely, the 15th and 22nd. The atmosphere was foggy on the 1st. Lightning was seen on the 15th, and a thunderstorm, with hail, occurred at Greystones, Co. Wicklow, on the 26th. Temperature reached or exceeded 70° in the screen on only 2 days, the 4th and 5th—or 8 fewer than in August, 1887, and one more than in August, 1888, Hail fell on the 23rd.

On Friday, the 1st, the unexpected approach of a shallow depression caused very wet inclement weather.

At the commencement of the week ending Saturday, the 9th, the weather was very warm, temperature having risen to 74·8°, and generally fair. The arrival of a shallow depression on Wednesday caused dull weather with drizzling rain at first, but the evening was beautifully fine. Thursday was clear and fine, with easterly wind. Friday was fine and warm, but a dense haze prevailed during the whole day. Saturday was fine but cloudy, with fresh to strong north-easterly wind. The barometer fell slowly during Thursday and Friday, and quickly on Saturday. The mean height of the barometer in Dublin during this week was 30·135 inches. The corrected mean temperature was 61·8°; the mean of the dry bulb thermometer at 9 a.m. and 9 p.m. daily being 61·4°. The rainfall equalled ·216 inch on two days.

In most respects the weather of the period ending Saturday, the 16th, presented a marked contrast to that of the previous week. Low and varying atmospherical pressure, a reduced temperature, clouds, squally westerly (N.W. to S.W.) winds, and frequent showers took the place of the high and steady pressure, warmth and sunshine, and easterly winds so prevalent in the first week of the month. During the first four days a thunderstorm depression travelled slowly in an east-north-easterly direction across England and the North Sea; while a deep depression passed over Ireland and Scotland from S.W. to N.E. on Thursday night and Friday. This latter disturbance caused fresh S.W. to W. gales and a very general rainfall—the precipitation being greatest in the N.W. of Ireland. In Dublin the mean height of the barometer was 29·695 inches. The corrected mean temperature was 57·4°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 57·0°. Rain fell to the amount of ·659 inch on five days. Sheet lightning was seen on Friday night, the 15th.

The weather of the third week (16th–22nd, inclusive) was in keeping with that of almost the whole season—it was changeable, cool, squally, and showery. A very heavy fall of rain took place on the evening of Friday, the 22nd, and hail fell on Saturday, the 23rd. The general distribution of air-pressure was this—lowest off the N.W. of Norway, secondary depressions crossing the United Kingdom and France from the south-westward, a ridge of comparatively high pressure extending from the Peninsula across Central Europe. On Monday night and Tuesday a thunderstorm depression caused heavy rains in the S. and S.E. of England, but at this time the weather was chiefly fine in Ireland. On Friday, however, a depression advanced rapidly from S.W. across this country, and heavy rains resulted. In Dublin the mean height of the barometer was 29·869 inches. The corrected mean temperature was 56·6°; the mean dry bulb temperature at 9 a.m. and 9 p.m. was 56·1°. Rain fell on five days, the total measurement being 1·038 inches, of which ·851 inch was referred to Friday. Hail fell on Saturday.

The week ended Saturday, the 30th, was again one of broken weather—cold, squally, and very showery. The barometer was generally low in the N., relatively high in the S., and several well-marked cyclonic systems passed in an easterly or north-easterly direction across North-Western Europe. At 8 a.m. of Thursday, the 28th, the barometer was as low as 28·92 inches at Haparanda, the Gulf of Bothnia. On Friday, the 29th, a decided and general increase of pressure took place, gradients became slight, and the weather improved, although temperature remained low. In Dublin rain fell in greater or less quantity daily. Falls of hail occurred near the city on Sunday and Tuesday—a thunderstorm passing over Greystones, Co. Wicklow, on the afternoon of the latter day. Although conditions were quieter on Friday and Saturday, yet evaporation showers fell locally in Dublin, chiefly owing to the prevalence of variable sea breezes during the daytime. In Dublin the mean height of the barometer was 29·733 inches, pressure ranging from 29·269 inches at 4 50 p.m. of Tuesday (wind, W.N.W.), to 30·180 inches at 9 p.m. of Saturday (wind, N.). The corrected mean temperature was 51·9°—the mean dry bulb temperature at 9 a.m. and 9 p.m. being 51·2°. The rainfall equalled ·640 inch, distributed over six days. On Monday ·252 inch was measured. The week closed with signs of more settled weather, and Sunday, the 31st, was beautifully fine, although very cool.

The rainfall in Dublin during the eight months ending August 31st has amounted to 18·386 inches on 137 days, compared with 9·455 inches on 96 days during the same period in 1887, 17·264 inches on 121 days in 1888, 18·893 inches on 134 days in 1889, and a 25 years' average of 17·558 inches on 128·1 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in August, 1890, was 2·216 inches, distributed over 16 days. Of this quantity ·460 inch fell on the 10th, and ·360 inch on the 26th.

PERISCOPE.

TOWN REFUSE (ITS TREATMENT AND DISPOSAL).

In a paper on this subject, Mr. G. E. J. Greene, L.R.C.P.I., L.R.C.S.I., Health Officer of Ferns, County Wexford, writes as follows:—"Town refuse should not—as is too often the case—be permitted to remain within populous districts any longer than is absolutely necessary; but should be removed daily, between the hours of 12 midnight and 6 a.m., by regular paid scavengers, in strong, glazed, iron carts, provided with closely-fitting lids, to a suitable suburban locality. Here—after the refuse has been duly sorted by means of rakes, &c., and such articles as bones, rags, clinkers, disposed of—the remainder should be incinerated in a furnace, or even in an old lime kiln, and the residuum in turn used for building and manural purposes. During periods of epidemics I need hardly say it would be necessary to incinerate the whole lot, as it must be obvious to anyone that the use of infected clinkers, &c., in the macadamising of roads and footpaths is undesirable, much more so the dissemination of morbific rags and paper in the various industries employing them. In order to facilitate the scavenger's work each householder should be compelled by statute to place in the street, before retiring to rest, all the refuse of the day, closely secured in regulation water-tight bins, previously purchased from the Sanitary Committee of the Corporation or Town Commissioners (the poor being supplied gratis). Ashpits and middens should not under any circumstances be allowed, as they are not only a nuisance to the neighbouring inhabitants by reason of their offensive emanations, but also a positive source of danger to the community at large. The plan of throwing animal and vegetable refuse on to the grate before lighting the morning fire is *economical*, but by no means conducive to health, as it usually fills the kitchen with a stifling odour, not always confined there, delays the kindling of the fire, and is always strongly objected to by the cooks. Every carter should be provided with a sufficient quantity of carbolic acid, permanganate of potassium, or such other more suitable deodorising disinfectant as experience might suggest, to render his occupation not alone safe, but *comparatively pleasant.* In conclusion, I would recommend certain authorities not to pay too much regard to the economic side of sanitation, but to look upon the maxim, *salus populi, suprema lex*, as true—for, after all, health is really synonymous with wealth."

LIST OF THE SUCCESSFUL CANDIDATES AT THE RECENT COMPETITIVE EXAMINATION FOR COMMISSIONS IN THE MEDICAL STAFF OF HER MAJESTY'S ARMY:—

Order of Merit	Names	Total Number of Marks
1	Powell, E. E.	3,245
2	Beach, T. B.	3,240
3	Williams, E. McK.	3,225
4	Jennings, J. W.	3,190
5	Carter, J. E.	3,105
6	Dowse, H. E.	3,090
7	Connor, J. C.	3,025
8	Hardy, F. W.	2,990
9	Healey, C. W. R.	2,945
10	Whitestone, C. W. H.	2,940
11	Ryan, R. P.	2,925
12	Graham, W. Ap. S. J.	2,920
13	Shanahan, D. D.	2,895
14	Dickson, H. E. B.	2,890
15	{Buggy, L.	2,880
16	{Pearse, A.	2,880
17	Mason, H. D.	2,875
18	Clapham, J. P.	2,855
19	D'Alton, C.	2,850
20	Tate, G. W.	2,825

COMPETITIVE EXAMINATION OF CANDIDATES FOR HER MAJESTY'S ARMY AND INDIAN MEDICAL SERVICES.

Medicine—Sir William Aitken—Tuesday, August 12th, 1890—from 10 a.m. till 1 p.m.—*Brit. Med. Jour.*, Feb. 13th, 1869, p. 137.—1. Case for commentary and critical analysis—Emma H., aged twenty-nine, admitted to hospital May 25th, 1868. No history of phthisis in the patient's family; and her health was good till she came to London two years previously. She had lived in Ipswich for a year, and before that at Yoxford in Suffolk, not very far from some salt marshes; but she never had ague, nor does she know that cases of ague ever occurred there. She had been married nine years, and had three children and three miscarriages. All her children died—one by accident; two by diarrhœa, aged one and five years respectively. Her habits had been temperate. She had plenty of food, and lived in an open situation till two months previous to May, 1868; during that time she had been in want and occupied a cellar-kitchen in a court in Holborn. Two years before admission to hospital she began to suffer at times from dull aching pain in the left side of the abdomen, increased by walking. At a hospital she was told she had a "lump" there, and took quinine without benefit. Nine months before admission the pain became worse, and the "lump" bigger than it was before, or has been since; and at the same time her legs and body swelled, and remained swollen for about a fortnight. During the previous three weeks she had been free from pain, but she has been becoming thinner and weaker. She has no cough, but sweats much at night. She has not menstruated for the six months previous to admission. When the patient was examined on the 3rd of June (*i.e.*, nine days after admission to hospital), she was seen to be thin; her eyes much sunken; pallor of face considerable. She could lie easily in any position, and complained of no pain or uneasiness. There was no headache. The tongue was clean; appetite good; skin, hot and dry; there was no rash. The temperature had varied since admission, at irregular intervals, from 100·5° to 104° Fahr., generally attaining its greatest elevation during the forenoon, and then sinking till night, when it will rise again. The pulse had varied from 100 to 120; the respirations about 24. There was no excess of white corpuscles in the blood. The patient has now a slight cough without expectoration. The thorax is small and long. The right infraclavicular region is slightly duller than the left; there is no difference in respiration. Percussion and respiration are normal posteriorly. The heart is healthy. The spleen can be easily felt, reaching nearly to the crest of the ilium; its percussion-dulness reaches upwards to one inch below the nipple. The anterior edge is oblique, and the notch in it is very distinct. The posterior edge is perceptible behind. The tumour moves very distinctly with respiration. It appeared to vary in size from day to day, the anterior edge coming an inch and a half more forward at certain times than it does at others. It is sometimes much less distinctly felt than at others, from intestines coming in front of the lower part. The apparent variations in size bear no relation to the variations of temperature. Between the last rib and the *crista ilii* on the right side, a body can be felt with a sharp anterior edge, apparently continuous with the anterior surface of the liver. The finger can be placed under its sharp margin. (This was seen *post mortem* to be part of the liver itself lying vertically, and extending much below and in front of the kidneys). The lower border of the liver could be felt about two fingers' breadths below the margin of the thorax. It was slightly tender. The urine was free from albumen. The patient sleeps well, but she continued to lose flesh and strength; the temperature to range between 101° and 103° Fahr.; and the pulse to vary from 100 to 130. The cough became more and more frequent, hacking and loose; some moist *râles* were superadded to other chest signs; vomiting supervened, and death on June 26th. (1.) What was the "lump" or tumour that was first felt, and state the reasons for your decision? (2.) To what were the other symptoms due, especially (*a*) the swelling of the body; (*b*) the swelling of the legs; (*c*) the apparent variations in size of the tumour; (*d*) the cough; (*e*) the rapid emaciation; (*f*) the febrile disturbance? Discuss the case from these points of view as to the diagnosis and nature of the lesions going on. 2. What are the causes of tumour of the abdomen dependent on the position and condition of the liver? By what signs would you recognise the existence of hepatic tumour? If a nodule or nodules are felt on the surface of the liver, to what morbid conditions may they be due; and how would you differentiate these conditions from each other? Explain the pathology of impediment to the flow of blood through the liver; and describe the symptoms to which it may give rise. 3. Explain the meaning of *vaccination*. Describe its purpose as applied to the human race; mention how, where, and by whom it came to be so employed. Explain what is meant by *primary vaccination*; and, what by *secondary vaccination* or *revaccination*; and describe the regular phenomena which follow each of these operations. Also, describe the appearance of a perfect vaccine vesicle; and of the scar or mark which is typical of a genuine vaccination; explain the pathology of these characteristic appearances. Explain, further, the *rationale* of "arm to arm" vaccination. State the limits of age at which primary vaccination is required by law to be performed; and explain the means required to secure its success. 4. Describe a case of measles; and indicate its complications, sequelæ, and treatment. 5. Name the officinal compounds or preparations containing arsenious acid, with the strength or proportion of arsenic in each, and the doses of each preparation. What are the symptoms which follow the use of arsenic in long-continued or excessive doses? Name the antidotes to arsenical poisoning; and the incompatible medicinal preparations which may not be prescribed with arsenic.

Chemistry—Dr. Allman—Tuesday, August 12th, 1890—from 2 p.m. till 4 p.m.—1. Three volumes of hydrogen combine with one of nitrogen to form ammonia. How many volumes of ammonia are the result? 2. Write down the equation which expresses the reactions occurring in the treatment of potassium cyanide with hydrochloric acid. 3. Give the formulæ which express the chemical composition of the following substances:—Calomel, corrosive sublimate, sulphuretted hydrogen, cyanogen.

Anatomy and Physiology—Sir Joseph Fayrer—Monday, August 11th, 1890—from 10 a.m. till 1 p.m.—1. Describe the ulna, and give an account of the origin and insertion of the muscles arising from or inserted in it. Describe, also, the anatomy of the elbow joint. 2. Describe the distribution and anatomical relations of the arteries and their branches, which supply the foot with blood. 3. Describe the minute structure of a liver lobule, and how the elements of which it is composed are anatomically related to each other. Give an account, also, of the functions of the liver, and state the composition of bile. 4. Describe the corpora-striata and optic thalami, giving, as far as you can, an account of their functions. 5. Describe the parts and their anatomical relations which enter into the formation of a femoral hernia.

Surgery—Mr. Pollock—Monday, August 11th, 1890—from 2 p.m. till 5 p.m.—1. What are the most frequent causes of aneurysm? By what symptoms may a popliteal aneurysm be diagnosed from any other tumour in the immediate neighbourhood of the knee-joint? What treatment should be adopted for the obliteration of the aneurysm, and what are the evils which may follow on the treatment pursued? 2. What are the early symptoms indicative of enlargement of the prostate gland? Describe the effects of such enlargement on the urinary tract, if treatment be neglected; and what measures should be adopted for the relief of the patient. 3. What are the usual characteristics, external and internal, of congenital tumours (nævi being excluded); and what treatment should be adopted under their various conditions? 4. A patient is the subject of an abscess pointing at the margin of the rectum. What should be the treatment in the first instance? What will be the most probable course of the case, and the ultimate measures which may be required for its permanent relief? 5. Describe the different dislocations to which the shoulder-joint is liable, the symptoms by which each form may be diagnosed, and the methods of reduction. 6. Describe the early indications, and commencement of a case of senile gangrene; and the treatment to be adopted in its various stages. In what respect does the character of the gangrene associated with diabetes differ generally from other forms of gangrene?

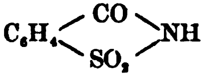
Natural Science—Dr. Allman—Tuesday, August 12th, 1890—from 4 p.m. till 6 p.m.—*Zoology*—1. What are the orders included under the non-placental mammals? Give their geographical distribution. 2. What is the notochord? Mention an instance of its persistence. 3. Refer to its proper sub-kingdom, class, and order each of the following animals:—*Lepas* (barnacle), *Loligo* (cuttlefish), *Buccinum* (whelk), *Scorpio* (scorpion), *Triton* (water newt). *Botany*—4. What is a syncarpous and what is an apocarpous ovary? Give one or more examples of each. 5. Enumerate from without inwards the verticils of a complete flower, and give examples of cases in which one or more of these verticils has been suppressed.

6. Refer to its natural order a plant with the following characters, and give one or more examples:—Leaves alternate, without stipules. Inflorescence without bracts. Calyx with four deciduous sepals. Corolla with four regular petals. Stamens six, two of these shorter than the others. Fruit a pod divided into two cells by a membranous partition which unites the two marginal placentæ. Seeds without albumen. Embryo with the cotyledons folded on the radicle. *Physics*—7. What is the nature of electric induction? 8. An electric current is made to pass through a copper wire above and parallel to the length of a horizontally suspended magnetic needle. What is the effect of the current on the needle? 9. Explain the formation of dew.

THE PLACE OF SACCHARIN IN PHARMACY WITH FORMULÆ.

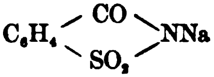
Dr. Attfield writes:—Saccharin will be of good service in pharmacy in four ways. Firstly, it will give patients an opportunity of taking certain medicines in comparatively small bulk. Many medicinal confections, powders and lozenges, have hitherto necessarily contained large proportions of sugar. A mere trace of saccharin put in place of the sugar, while rendering the medicaments as sweet as before, will give such a reduction in bulk that, for example, a bismuth lozenge will become a mere pellet, and compound liquoric powder, or confection of senna, be reduced to half their old volume. Secondly, the intensity of the sweetness of saccharin will enable it to mask the nauseous taste of certain medicines, the flavour of cod-liver oil, for example, being well disguised. Thirdly, patients who are obliged to avoid sugar will no longer be deprived of its property of sweetness, for not only tea, coffee, cocoa, &c., but many medicines also, containing saccharin in place of sugar, will once more become palatable—sweet, but not harmfully sweet. Fourthly, saccharin not being liable to ferment, while sugar is specially prone to ferment, its use will afford permanent preparations where those made with sugar would frequently spoil. The exhibition of saccharin will present no difficulties. In prescriptions for fluids, such as gargles, mixtures, and emulsions, where physicians would have ordered a given quantity of solution of sugar (syrupus) they will prescribe an equal volume of simple solution of saccharin (sol. sacc. simp.). In prescriptions for a powder, or a confection-like mass, saccharin itself might be prescribed (see appended examples). And most of the large number of galenical preparations, as commonly ordered by physicians, and now made with sugar, would be prepared with saccharin, and would be set forth in prescriptions under distinctive names—mist. cretæ *sacc.*; pulv. glycyr. co. *sacc.* concent.; conf. sennæ *sacc.* concent.; &c. Concerning incompatibles: Saccharin is a tolerably indifferent substance. It is unaffected by the fluids of the body, acid or otherwise, for it has been proved to pass through the system unchanged. Fusion with caustic alkali gives a salicylate, hence prolonged contact with strong alkalies is probably undesirable; and, obviously, acids would precipitate saccharin itself from a strong, though not from a weak, solution of a soluble saccharinate, that is, "soluble saccharin;" but saccharin is quite unaffected by the ordinary materials used in medicine. *Solutio Saccharini Simplex.*—Simple solution of saccharin—(It has the same degree of sweetness as the *Syrupus* of the British Pharmacopœia—B.P.—and therefore would be prescribed in exactly similar quantities). Take of soluble saccharin, 30 grains; distilled water, 1 pint. Dissolve. Each fluid ounce contains a grain and a half of soluble saccharin. Each fluid drachm represents one-sixth of a grain of ordinary saccharin. *Dose.*—5 to 20 minims. *Note.*—Saccharin itself is but slightly soluble in water (0·46 per cent.), but is readily dissolved if previously mixed with at least half its weight of bicarbonate of sodium, with the sodium of which it forms a soluble saccharinate, containing the equivalent of practically ninety per cent. of saccharin. This is "Soluble Saccharin." It is soluble in twice its weight of water.

Chemical Formulæ.



$$C_6H_4{<}\begin{matrix}CO\\SO_2\end{matrix}{>}NH$$

Saccharin.



$$C_6H_4{<}\begin{matrix}CO\\SO_2\end{matrix}{>}NNa$$

Soluble saccharin.

Expressed in weight, 183. Expressed in weight (183—1 + 23) 205.

Or, 100 of saccharin = 112 of soluble saccharin.

Or, 100 of soluble saccharin = $89\frac{1}{2}$ of saccharin.

ANAL INJECTION OF ETHER FOR INTESTINAL OCCLUSION.

J. C. MORY (*Berl. klin. Wochenschr.*, 1890, No. 12) reports the successful treatment of two cases of intestinal occlusion by the injection of a solution of ether in alcohol, added to sufficient fennel water to form an injection. The warmth of the bowel converts the ether into a gas and so dilates the intestine and removes the occlusion.

STYRONE.

A MIXTURE of styrax and Peruvian balsam, under the name styrone, is recommended by American surgeons as being not only our most agreeable but also our best antiseptic, and it has the further advantage of being non-poisonous. The following preparation is recommended to be used as a spray:—Styrone, 1 part; glycerine and water, of each 10 parts. Make a solution.

TREATMENT OF MIDDLE EAR DISEASE.

G. H. GOODWILLE, M.D. (*New York Med. Journal*, 24th Aug., 1889), says:—"One of the first things to do in middle ear disease is to treat the nasal catarrh, to remove pent up secretions, and to put the parts into an antiseptic condition. The treatment can best be made by means of a spray of peroxide of hydrogen (15 p.c.). When the peroxide meets the secretion an effervescence takes place, and the mucus is changed into foam. Its septic nature is entirely changed, and it can then be readily blown or wiped from the nostrils."

ARISTOL.

At a meeting of the Société Médicale des Hôpitaux of the 25th of April, M. Brocq reported a case of epithelioma of the face in which aristol as a topical application caused cicatrisation of the epithelial ulcer in a few days. He also obtained good results in syphilitic and tuberculous ulcers by dusting the powdered aristol on the diseased surface.—*Le Mercrede Médical.*

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

The "Pinol-Eucalyptia" Dry Inhaler.

This ingenious inhaler resembles in shape and size a cigarette-holder. It consists of a glass-tube two inches in length and prolonged at one end into a narrowed mouth-piece. The tube is packed with wood-chips, sawdust, or pith, secured with a network of wire-gauze at each end. Into the larger end of the inhaler a few drops of pinol or of eucalyptia, or of both, are to be poured. The inhaler should then be held upright for a moment to allow the inhalant to soak through the packing of the tube. The apparatus is then charged and ready for use. The patient should inhale from the mouth-piece and exhale through the nostrils; in this way the vapour comes into contact with all the membranes of the throat and nose.

The apparatus, patented by Messrs. Burroughs, Wellcome, & Co., of Snow Hill Buildings, London, E.C., is portable, light, cleanly, and efficient. It supplies a ready and effective means of conveying the volatile principles of such antiseptic inhalants as pinol and eucalyptia to the larynx, lungs, and nasal passages.

"Hazeline-Cream" Ointment.

Messrs. Burroughs, Wellcome, & Co., have prepared this "cream" as an improvement upon the ordinary *cold cream* of the pharmacies. It combines the well-known properties of hazelin with those of lanolin. The latter is said not to turn rancid, and is devoid of free fatty acids, its action being pleasantly soothing and emollient.

This preparation is well adapted for use with Dr. Ward Cousins' injector, which we noticed and described in the number of this Journal for July, 1889. [See Vol. LXXXVIII., No. 211, Third Series, Page 95.]

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In future no papers will be inserted as "Original Contributions" except on the distinct understanding that they are sent for publication to this Journal alone, and that only abstracts of them (with due acknowledgment) shall afterwards appear elsewhere.

Authors of "Original Communications" will please consider themselves bound in honour to a strict observance of this understanding.

Authors of Communications are requested to write the prescriptions in their paper in full, and in English.

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THE DUBLIN JOURNAL
OF
MEDICAL SCIENCE.

NOVEMBER 1, 1890.

PART I.

ORIGINAL COMMUNICATIONS.

◆

ART. XVI.—*A Case of Successful Cæsarian Section.*[a] By ARTHUR V. MACAN, M.B., F.R.C.P.I.; King's Professor of Midwifery, School of Physic, Trinity College, Dublin; Obstetric Physician to Sir P. Dun's Hospital; ex-Master, Rotunda Lying-in Hospital.

CASES of successful Cæsarian section are in all countries comparatively rare, but in Ireland they have been up to the present almost unknown. Thus, I have been unable to find a record of any case where the operation was successfully performed on the living woman in this country. Nor do the records of the Rotunda Hospital during the 130 years of its existence contain one. The chief reason for this is undoubtedly that in Ireland cases of extreme pelvic deformity are very rare. I fear, also, that the fatal perfection to which constant practice had brought the operation of delivery by craniotomy and extraction, and the habit of mind it engendered of considering the child's life of no account, has naturally militated against the Cæsarian section. Finally, till the introduction in 1876 by Porro of the operation which is known by his name the mortality of the Cæsarian section when performed in large cities or lying-in institutions was almost 100 per cent. Thus, for nearly one hundred years there had not been a successful case of the operation in Paris, though it had been performed many times by the most celebrated surgeons, and in Vienna and Prague it had not been much more successful.

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[a] Read before the Section of Obstetrics of the Royal Academy of Medicine in Ireland, Friday, January 18, 1890.

Hence, when Porro published his first successful case it attracted the attention of the whole profession, and from the success that followed the further trials of the operation, both in his hands and in those of other operators, it seemed as if the days of the old Cæsarian section were numbered. The explanation, too, of the success of Porro's operation was not difficult, for it evidently depended on the lessened danger of peritonitis, which usually followed the Cæsarian section owing to infection of the peritoneum from the interior of the uterus. It seemed, however, also certain that infection of the peritoneum from the interior of the uterus would be impossible if any means could be devised to procure accurate union of the uterine wound. The chief difficulty was supposed to be caused by the constant alterations between contraction and relaxation of the uterine walls, and also the very quick reduction that takes place in the size of the organ after delivery. In order to overcome these difficulties Prof. Sänger, of Leipzig, introduced a new method of suturing the uterine walls. He first separated the peritoneum from the muscular layer for the distance of half an inch all round the wound, and then removed a wedge-shaped portion of uterine tissue, the base of which was formed by the portion from which the peritoneum had been separated. He then united the muscular layer of the uterus by sutures which did not include the decidua, and then sewed the peritoneum carefully over the top. By this method, joined of course by the most scrupulous attention to antiseptics, such good results have been obtained that the Cæsarian section has again come into favour, and the operation of Porro is reserved for cases where some special conditions are present which contra-indicate the former operation, or, at all events, make its success very doubtful. As successful cases of Cæsarian section accumulated it became more and more apparent that the success of the new method depended on the accurate apposition of the two surfaces, and that the exact method by which this was obtained, or the material used for the sutures, was of little consequence.

Case.—K. S., aged twenty, single, admitted into the Rotunda Hospital on July 9th, 1889, having been sent up from Dundalk by Dr. Kearney. She was last unwell on Oct. 19th, 1888, and should therefore be confined about July 26th. The following are the measurements of the patient taken on admission: Height, 110·4 cm., or 3 feet 7½ inches; Sp. Il., 23 cm.; Cr. Il., 23·3 cm.; C. D., 6·25 cm.; C.V. estimated at 4·5 cm. The girl was well nourished, and had all her wits about her, and although she was so small, and the child was evidently not below the average size, and its head had not in the least entered the brim, there was not the slightest tendency to pendulous abdomen. My first idea was to perform a Porro, in favour of which were the following points:—1st. The exact time for the operation can be settled, and one has not to wait till labour has set in. 2nd. The operation is itself much easier than the Cæsarian section, the success of which greatly depends on accurate sewing of the uterine wound, and as I had never seen either of them performed I was inclined to choose the less complicated one. 3rd. It would, if successful, save the woman from any risk of a similar operation having again to be performed. On looking up the most recent authorities I found, however, that they were in favour of the Cæsarian section, and against the operation of Porro, except when there was a positive indication for the removal of the uterus present. These are chiefly—

1. When the uterus is the seat of any disease, such as myoma, which, if left behind, might soon require removal.

2. When the woman is suffering from any disease, such as osteomalacia, the cure of which might be seriously interfered with or even prevented by a subsequent pregnancy.

3. When the patient has already been so long in labour that it is probable that the discharge is beginning to decompose, or when she has been examined by persons who may easily have infected her, or where she shows evident signs of infection having taken place. As none of these conditions were present I determined to perform Cæsarian section.

The first thing was to settle which of the methods of operating I would adopt. The chief points about which there is question are—first, should the uterus be opened *in situ*, and the child extracted, and the uterus then brought out through the abdominal walls, and sutured. Or, should the incision in the abdominal walls be made sufficiently large to allow of the uterus being turned out of the peritoneal cavity while still containing the child, the child being extracted outside the abdomen.

A further disputed point is whether an elastic ligature should be placed round the neck of the uterus, and tightened before the uterus is incised, or is it better to trust to the uterine construction alone to stop the bleeding. Perhaps the most important point of all was as to what method I should adopt for suturing the wound in the uterus, on the accurate apposition of which, if we exclude the question of antiseptics, the whole success of the operation may be said to depend.

The only advantage of extracting the child before you turn out the uterus is that the abdominal incision does not require to be so long. What settled the question in this case was that I had determined to use the elastic ligature to check the bleeding from the wound in the uterus, and this was only possible when the uterus was first brought outside the abdomen. What determined me to use the elastic ligature was that by it all bleeding is checked, and so there is no occasion to be in any hurry when passing the sutures through the uterus. This I consider the more important, as on the accuracy with which this is done the success of the operation mainly depends. As this was my first case, and I had never even seen the operation performed, I thought that this would more than counterbalance the supposed tendency the prolonged use of the elastic ligature has to cause inertia of the uterus and consequent *post-partum* hæmorrhage. The exact time the operation is performed is also important, the most favourable period being towards the end of the first stage of labour, when the os is nearly fully dilated and the membranes still unruptured. The reason for waiting so long is in order that the lochia may be able to drain away through the cervix during the puerperal state.

On July 29th the girl had some pains, and as she was already some days beyond her time, I thought labour was coming on, and sent out notices for the operation next morning at ten o'clock. However, the pains went away in the night, and it was not until August 4th, at 10 a.m., that labour commenced.

At 8 30 a.m., on August 5th, the cervix was taken up, the os admitted one finger and the F.H. was good, so notices were sent round to as many as possible, that the operation would be performed at 10 30 o'clock. Before the operation, the vagina was carefully disinfected by Dr. Bagot with corrosive sub. solut. 1 : 5,000, and all the usual antiseptic precautions for cases of laparotomy were adopted.

The Operation.—The incision in the abdominal wall was carried from the umbilicus to within two inches of the pubes, but had to be extended upwards considerably before the uterus could be turned out of the abdomen. The wound in the abdominal wall above the neck of the uterus was then closed as far as possible with American forceps, as this seemed to me a much easier and quicker method than by passing provisional ligatures. A strong elastic ligature was now put twice round the cervix of the uterus drawn tight, and then fastened with a large compression forceps. The uterine wall was then freely incised in the middle line between the fundus and the cervix. As the placenta was found attached to the uterine wall right underneath the incision, the latter was continued downwards towards the cervix, and the membranes soon came into view. They were at once ruptured and the child extracted without difficulty, but though the time from the application of the elastic ligature to the extraction of the child could scarcely have been two minutes, the child was in a state of blue asphyxia. The cord was at once tied and cut, and artificial respiration by Schultze's method practised, and the child, a fine boy weighing 7½ lbs. soon cried out lustily.

After peeling off the placenta and membranes, and disinfecting the interior of the uterus, the next step was to bring the edges of the uterine wound together by sutures. The material chosen was silk, and the method that recommended by Prof. Fritsch, in No. 23 of the *Centralblatt f. Gynaekologie* for 1889. I was led to adopt this method from its simplicity, for except that the stitches are closer together, they are passed just the same as in closing the abdominal wall. They are introduced one cm. from the edge of the uterine wound, pass through the muscle and decidua, emerging through the latter about ½ or ¾ of cm. from edge of the wound, and continued through the opposite side of the wound in like manner. Sixteen stitches were thus passed and tied tightly, and the elastic ligature was then removed. The uterus contracted badly, and some oozing of blood took place, which was stopped by passing an additional suture, and applying hot sponges to the uterus, and kneading. The abdominal walls were then closed by sixteen stitches, and the usual Lister's dressing was applied. The patient now seemed very pale, but it was not till she was raised to put on the abdominal bandage that I was aware that she had lost a very considerable quantity of blood per vaginam. This, however, had then ceased to be more than what was natural, and so the patient was put to bed.

The after-history of the case need not delay us. The patient's temperature on the second and third day was just above 100°, and on the fifth and ninth days just touched 100°, but her pulse was very quick for the first four days, being 140 the morning after the operation. She showed no symptoms of sepsis however, and I was forced to the conclusion that it was caused partly by the *post-partum* hæmorrhage, and partly perhaps by the five per cent. solution of carbolic acid with which I swabbed out the uterus.

The sutures were removed on the twelfth day, when the union was found to be perfect, and the girl got up on the twentieth day. More than five weeks after the operation she got a sudden rise of temperature up to 102° with a pulse of 120, which seemed to be connected with the return of menstruation, and soon subsided. I have lately heard about her, and she says she is not feeling quite strong, and that two of the uterine sutures have been expelled per vaginam.

ART. XVII.—*On the Pathology of Empyema.*[a] By HENRY T. BEWLEY, M.D., F.R.C.P.I.; Assistant Physician to the Adelaide Hospital; Lecturer on Medical Jurisprudence in Trinity College, Dublin.

ACUTE suppuration we may, I think, consider as being in almost every case due to the action of micro-organisms. Professor Watson Cheyne, in his Lectures on Suppuration and Septic Diseases, can mention only two affections in man in the pus of which competent observers have failed to detect bacteria. In some cases of suppurating bubo after soft chancre no organisms could be found, especially in those cases in which the bubo after being opened took on a chancrous appearance. Occasionally, too, under sal alembroth dressings, when the discharge from the wound is free, sores or pustules form on the skin which contain a sticky semi-purulent material, but no bacteria. "With these exceptions," Cheyne says, "we always find that suppurations occurring naturally are associated with micro-organisms."

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[a] Read before the Section of Pathology in the Royal Academy of Medicine in Ireland, on Friday, January 10, 1890.

We may, therefore, consider that empyema is due to the entrance of pus-producing organisms into the pleural cavity. These micro-organisms have been looked for and found by a large number of observers. On the other hand, serous pleural effusions are usually free from organisms. Professor Ehrlich[a] states that "serous effusions are free from micro-organisms," and Professor Fränkel[b] stated that if micro-organisms are found in serous fluid removed by exploratory puncture from a pleural effusion, in these cases an empyema really exists already, the pus corpuscles, through their higher specific gravity, having sunk to the bottom, and left a layer of serum above.

The question as to the pathology of empyema may therefore be put in the following way:—What are the micro-organisms that cause empyema, and how do they get into the pleural cavity?

According to their pathology we may divide cases of empyema into several classes. The way in which the bacteria make their way into the pleural sac is in some cases plain and evident; in other cases it is more doubtful and difficult to be certain about.

(1) There are some cases of empyema which are due to the introduction of ordinary pus-producing organisms, either through the chest-wall or from the lung into a healthy pleural sac, or into a previously existing serous effusion; as when a penetrating wound of the chest-wall is received, when a pulmonary abscess or an area of gangrene in the lung comes to communicate with the pleural cavity, or when a septic exploring needle is introduced into a serous effusion.

(2) Some cases of empyema occur in immediate connection with croupous pneumonia, and are caused by the organism which is believed to cause many cases of pneumonia—the so-called pneumo-

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[a] Berliner klinische Wochenschrift. 1888. P. 408.

[b] Idem. P. 407.

coccus of Fränkel. Out of 12 cases of empyema which this observer examined,[a] in three he could not find in the pus any other organism except the pneumococcus. He remarks that he has found the prognosis in cases of empyema due to the pneumococcus to be better than in those which are caused by the ordinary pus-producing micrococci.

As to the exact route which the pneumococci take in making their way from the lung into the pleura—whether they make their way directly through the pulmonary pleura, or whether they get into the blood and lymph, and are so carried to the pleural sac—I do not know of any evidence to enable us to form any definite opinion.

(3) A third group consists of those cases in which the infective virus is the tubercle bacillus. In these cases tuberculosis of the lung exists, and the bacilli make their way through a hole in the pulmonary pleura. In some cases the rent in the lung is manifest and large, as when a phthisical cavity bursts into the pleural sac, giving rise to a pyopneumothorax; in other cases minute perforations occur in the lung, through which a minute particle of tubercular matter gets into the pleural sac. In these latter cases a tuberculous empyema develops without any pneumothorax.

In some of these tubercular empyemas tubercle bacilli are few in number and difficult to find. Owing to this difficulty in finding tubercle bacilli, and the ease with which other organisms are found if present, Professor Fränkel[b] lays down the rule that if you fail to find any micro-organisms in an empyema it is probably tubercular in nature.

(4) In the next class which we have to consider, the mode in which the pus-producing organisms make their way into the pleural sac is more obscure—I mean in those cases in which a serous effusion without any apparent cause becomes purulent. The germs in these cases cannot make their way in through the chest walls; there is no disease or opening through which they could get in. Again, I do not think it is likely that in these cases the virus makes its way from the lung through the pulmonary pleura. We have no reason for suspecting any breach of continuity in this membrane. It is much more probable—and the analogy of similar infective diseases supports this view—that the organisms get into the pleural sac by way of the blood and lymph vessels. Let us

[a] Berl. klin. Woch. May 14, 1888.

[b] Berl. klin. Woch. 1888. P. 407.

consider first the relations which exist between the tissues of an animal's body and these pathogenic germs, streptococci and staphylococci, organisms which are the cause of many serious and often fatal diseases—abscesses, pyæmia, cerebro-spinal meningitis, osteomyelitis, and many others. These organisms, if introduced into the blood of a healthy animal, often disappear in a very short time, being destroyed in the body or excreted by some of the excretory glands, or at any rate got rid of in some way, without causing any mischief. Such experiments have been frequently made on animals. In the case of human beings also pus-producing organisms have frequently been found floating about in the blood and not doing any harm. Von Eiselsberg[a] demonstrated the presence of staphylococci and streptococci, most frequently of staphylococcus pyogenes albus, in the blood of patients who were suffering from septic fever, and yet no abscesses formed. Children have been born suffering from osteomyelitis,[b] while the mothers, through whose blood the organisms must have come, remained in perfectly good health. Fränkel and Freudenberg[c] have found streptococcus pyogenes in the blood of many persons who were suffering from scarlatina, and no abscesses or septic affection resulted.

So that we see that these pus-producing organisms may exist in the tissues without doing any harm, and that they probably do so exist when the vitality of the tissues is not very good—*i.e.*, in depressed states.

But if one spot in an animal's body is especially weak, owing to injury, inflammation, or some other evil influence, then the case is very different. The natural forces, whatever they are, by which the body destroys these micro-organisms are unable to act in this weakened spot; the bacteria flourish, multiply, and produce their baneful effects.

If a number of pyogenic micrococci be injected into the blood-vessels of an animal, and at the same time one of his bones be fractured, the animal generally dies in some days, and the bone at the seat of the fracture is found in the condition of osteomyelitis. The tissues being weakened at the seat of injury, the germs were able to multiply there, and produce the disease.

Again, Wyssoskowitsch[d] and others, by injuring the tricuspid valves by means of a rod introduced through the jugular vein and then injecting micrococci into the blood, succeeded in producing a typical case of ulcerative endocarditis. The injury led to a loss of resisting power.

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[a] Langenbeck's Archiv. Vol. XXXV.

[b] Rosenbach. Micro-organismen bei den Wund-Infections-Krankheiten des Menschen. Wiesbaden. 1884.

[c] Centralblatt f. klin. Med. 1885.

[d] Brit. Med. Jour. 1888. No. 1418. P. 456.

Let us suppose the animal into whose blood the micrococci were injected, instead of having a broken bone or a torn tricuspid valve, had had a pleurisy with serous effusion, the cocci would probably have found the inflamed pleura and the effusion a suitable ground to develop in, and an empyema would have been the result.

Such, then, is the way in which we must explain these cases of empyema—namely, that under various conditions, especially when the general health is not good, different kinds of pathogenic organisms find their way into the tissues of the body, are carried about by the blood and lymph, and, if they find in any part of the body conditions suitable for their growth, develop and multiply, and cause suppuration.

There are other diseases whose pathology is in some respects comparable to that of empyema—namely, amongst others, ulcerative endocarditis, cerebro-spinal meningitis, and many deep-seated abscesses. As an instance of the last, Watson Cheyne[a] mentions the case of a drunkard who had albuminuria. Whenever he received a bruise he developed an abscess at that part. In his depressed state the pus-producing organisms were able to live in his blood; and the injuries, by setting up the early stage of inflammation, and thus further weakening the tissues, and also by leading to the effusion of blood containing the organisms, gave rise to the formation of abscesses.

With regard to the question as to how they make their way into the blood and tissues in the absence of wound or injury, no definite answer can be given; but it seems probable that in some cases at any rate the germs make their way in through the walls of the digestive canal. Kocher[b] made experiments on dogs; he fed them on quantities of putrid material, and then found that an injury to a bone was followed by osteomyelitis. As a result of the putrid food bacteria increased in numbers in the digestive canal, and some of them succeeded in making their way into the blood—hence the suppuration after the injury. In other cases the infection may occur in other ways. We often cannot tell how the germs have got in; but "in all cases of internal suppuration," says Professor Weigert,[a] "we must believe that a communication between the seat of disease and the outside of the body exists, or has existed."

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[a] Brit. Med. Jour. 1888. No. 1418. P. 456.

[b] Deutsche Zeitschr. f. Chirurgie. Vol. XI. 1879.

(5) A fifth variety of empyema occurs in pyæmia. In this disease enormous numbers of micro-organisms exist in the body; they form emboli, which block up small blood-vessels, and give rise to secondary abscesses. The pleura may be affected, and a pyæmic empyema ensue. These cases differ from the last-mentioned, in that in these pyæmic cases the organisms probably exist in the blood in far greater numbers, and possibly possess greater virulence. Hence, they are able to overcome the resistance of the tissues and cause suppuration at almost any point, and do not need, as in the former case, to wait until, so to speak, some injury or inflammation opens the door for them.

To sum up my main conclusions:—

(1) Empyema is always caused by micro-organisms.

(2) These are of different species, there being no one specific variety.

(3) In some cases ordinary pus-producing and putrefactive bacteria get into the pleural cavity through some opening in the chest-wall or lung.

(4) Some cases are associated with croupous pneumonia and are caused by the pneumococcus.

(5) Some cases are due to the action of the tubercle bacillus.

(6) In some cases pus-producing micrococci, which have in some way got into the blood, but are not, if unassisted, able to develop in the body, find in an inflamed pleura or serous effusion a locality suitable for their development, and under their influence a serous effusion becomes purulent.

(7) Some cases are pyæmic.

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[a] Eulenberg's Real Encyclopädie d. Gesammten Heilkunde. 2 Aufl. Bd. 6. "Entzündung." P. 348.

ART. XVIII.—*On Extraction of Parietal Intra-Uterine Fibromyomata through the Natural Passages by means of Professor Vulliet's method of Dilatation by Tampons.* By DR. EMILE JUILLIARD. Translated by CHARLES G. CUMSTON, First Assistant at Docent Kummer's Clinic, Geneva. Part II.

(*Continued from page 311.*)

II. OF THE DIFFERENT OPERATIONS FOR INTRA-PARIETAL FIBROMYOMA; VULLIET'S OPERATION.

WISHING to exclusively occupy myself with the surgical treatment of intra-parietal fibroma, I consider that the various palliative and curative methods of treatment of a non-surgical nature may be laid aside. These may, it is true, help a cure in certain cases, but they rarely cure when employed by themselves. Having regard to the fact that sub-mucous fibrous tumours, and even the interstitial ones, do not adhere strongly to the uterine tissues from which they are separated—as has already been demonstrated in the first part of this paper—by a layer of loose cellular tissue, Velpeau seemed to have had the idea of practising enucleation, but Amussat, in 1840, was the first to perform this operation. Some time later Amussat read a memoir on the subject at the Academy of Medicine of Paris. In the number of the *Gazette Médicale de Paris* for Jan. 28, 1843, will be found a *résumé* of this memoir, from which I extract the two following conclusions:— 1. "Pathological anatomy, by indicating the real disposition of fibrous tumours developed in the walls of the uterus, has led me to perform an operation that up to the present time has not been attempted." 2. "I think I have changed the limit of operating which has been established between non-pediculated fibrous tumours or polypus, and non-pediculated or interstitial fibrous tumours—that is to say, enclosed in the uterine walls; and I trust that it will not be long before the extirpation of this last-named species of tumour will be generally admitted into science and surgical practice."

Velpeau, Boyer, Bérard, and Maisonneuve, followed this lead. A little later Atlee [1] [*] incised the layers covering the myoma, and immediately after having dilated the uterus with ergot he endeavoured either to remove it or allow it to slowly disappear by suppuration.

As to the *modus operandi*, two procedures have been employed. In the first the tumour was immediately and completely detached

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[*] The numerals refer to the Bibliography at the end of this paper.

by the operator's finger after having incised the inferior segment of the uterus, so as to come upon the position of the neoplasm. The second operation consisted in partially attacking the tumour at intervals of several days or even weeks. West published 27 observations of enucleated tumours. They were a *résumé* of the cases operated on from 1840 to 1858 by Amussat, Maisonneuve, Grindsale, Teale, and Atlee. Among this number were 14 fatal cases, and 13 cures. Maennel[2] collected 47 cases, with 30 cures, and 17 deaths. Braun[3] gives 60 enucleations, with 41 cures. According to Gusserow[4] the total of operations performed in 1878 amounted to 154, with 51 deaths, in other terms 33·1 per cent. This surgical procedure, like all those which admit of an intra-uterine traumatism, could only cause a disastrous result. Enucleation of interstitial fibromata consequently fell into complete disrepute; and Lawson Tait tried to substitute castration, so as to bring about the menopause, supposing that this method would lead to the arrest of hæmorrhage, and the involution of both uterus and tumours. This method does not seem to have given all the satisfaction that the author intended it should—this is at least the opinion of several surgeons who wished to imitate Lawson Tait, and at the present time it is still laparatomy to which the majority of operators turn for the extirpation of large interstitial fibromata. Vulliet having succeeded by the use of intra-uterine tamponing in placing absolutely antiseptic dressings in the deepest parts of the cavity of the organ, took up the operation of enucleation, and transformed this procedure, so full of dangers, into a continually controllable traumatism, which can be kept protected from all infection. I shall present twelve cases which have been treated by Vulliet's method without giving rise to either increase in temperature or hæmorrhage. These are facts which are better and clearer than all conjectures. If this method is so favourable it is not only because it is based upon a persistent sterilisation, but also because Vulliet abstains from all attempts at a forcible enucleation; he does not go beyond relaxing unless a part of the tumour is very prominent. The expulsion is left to the natural efforts of the uterine contractility.

Before attacking a fibroma imbedded in the walls of the uterus, great care must be taken to find out its exact position, volume, size, and extent—in a word, to explore and palpate the tumour—for it is on a perfect knowledge of the topography of the neoplasm that intervention is based. What means of exploring will furnish us with all the necessary information with the greatest precision? Is it the uterine sound? The impressions transmitted to the hand by the extremity of a rigid stem moving in a dark cavity cannot inform us absolutely as to the relations which exist between a tumour and the wall which surrounds it, because these relations are indicated by differences—often very slightly pronounced—in the consistence of two tissues. The sound is an instrument for mensuration, and nothing more; can it be by the finger? It is evident that intra-uterine touch is the only efficient means of exploration. It is now some time since the necessity of controlling everything with our sense of touch has led to the dilatation of the uterus by means of expansile tents and Hegar's dilators; but he who has practised intra-uterine palpation knows very well that an examination or two is rarely sufficient for us to come to a decisive conclusion—how each application of an ordinary dilatation obliges an intervention as solemn and grave as an operation which cannot be performed until we have all required information. When the cavity is high up, the finger is not usually long enough to explore the very background. This is not entirely the fault of the want of length of the finger, it is also because the lowering of the cervix causes an elongation of the uterus—all the more so the lower the entire organ is. If two fingers can be introduced into the uterus, they penetrate about a centimetre higher, and if four be introduced besides the part of the hand situated above the root of the thumb, it generally becomes easy, by pressing on the fundus uteri with the other hand, to reach the remotest recesses of the uterine cavity. So either to repeat at will the investigations with one finger, or to realise the maximum of dilatation, the ordinary procedures are insufficient. Dilatation obtained by "tamponnement à demeure"—whether the agent employed is cotton alone, or whether the cotton is employed as a plug for keeping open dilatations already obtained by other means—the dilatation by tamponing, I maintain, as formulated by Vulliet, is the best means for obtaining access to the uterine cavity, or for enlarging the cavity to a point up to the present entirely unknown. Let me add that once these great dilatations are obtained, one can, with or without the aid of an intra-uterine speculum, see to the bottom of the uterine cavity, can witness the disorders *de visu*, and perform operations as in the buccal cavity. It is quite evident that tumours which displace and render the uterus immovable, do not always allow the axis of the cavity to be brought into light, but it is none the less true that under favourable circumstances the interior of the cavity can be plainly seen.

The use of the "tamponnement à demeure" for exploring, leads us to other remarks. I have come to the conviction that this method is capable of rendering great services as a means of inducing resolution in uterine and peri-uterine tumefactions of a painful nature, with swelling of the parametrium and discharges from the pelvic peritoneum, and of producing a repressive influence on all fibromata which form real tumours, enveloped by a capsule of the same variety that Virchow calls general hyperplasia of the fibromuscular tissue. This method is, in my opinion, also a hæmastatic as sure in action as electricity. I have applied constant and intermittent currents. In cases where the diagnosis had been made out with all possible precision—thanks to dilatation—the effects of electricity were never more pronounced than those obtained through dilatation by means of iodoform tampons. I believe that practitioners employ treatment by electricity in the case of many tumefactions which are not real fibromata.

VULLIET'S METHOD.

The operative method of Professor Vulliet consists in several manœuvres that I shall now successively describe. In the first place I will describe dilatation, then the drawing down of the uterus, the debriding and extirpation of the tumour.

Dilatation.—When the tumour has not already dilated and partly opened the uterine canal, Vulliet commences the dilatation by introducing, in the first place, into the uterine cavity malleable male urethral sounds, or sounds made of tin, to which any degree of curvature desired can be given. If the canal is penetrable for a No. 25 sound, he puts in a piece of laminaria. Considering the length of the canal, these pieces must often go very much further than the uterine tents usually found in commerce. Vulliet, then, has recourse to sounds of laminaria, destined for the male urethra, and these he cuts into the desired lengths. Once the canal is dilated and of uniform calibre, the introduction of tampons is commenced. These are made of antiseptic cotton, with a double string attached to them. They are then plunged into an ethereal solution of iodoform, iodol, or salol, of 6 to 10 per cent. in strength; they should not be employed until completely dried. The size of these tampons varies from that of a bean to that of a large walnut. They are carried to the external orifice of the cervical canal by means of long, thin, dressing forceps, of different curves, according to the position of the patient. They are then pushed gradually into the uterine cavity by an assistant.

The most advantageous position for these manipulations is the genu-pectoral, but the choice cannot always be had, and they may be performed in any of the gynæcological positions.

To facilitate the introduction of the tampons, Vulliet fixes one of the lips of the cervix with claw forceps, and gives them in charge to an assistant, who produces a certain degree of tension and traction. By this means the uterine canal becomes more rectilinear, all the strings of the tampons hang from the vulva—they can be counted and tied together in one knot. Another tampon of wadding or iodoform gauze is rolled round the bundle formed by the tying of the strings together, and is pushed back to the end of the vagina. The number of tampons which are introduced after the first *séance* depends on the previously existing degree of dilatation; it varies in general from 6 to 15. They are left *in situ* twenty-four to forty-eight hours. At the end of this time they are withdrawn, the cavity is washed out with an antiseptic solution, and afterwards larger tampons in greater number are introduced. Four or five *séances* of dilatation are generally necessary in order to be able to make an intra-uterine examination with a single finger. To make a complete examination with several fingers the process of dilatation should be carried on, which may oblige five or six supplementary *séances*. Sometimes one does not realise, or rather not quickly enough, the degree of distension with tampons which is necessary; in that case recourse to strips of laminaria or sponge-tents is required. The dilatation should be equal in the entire length of the cervico-uterine canal, the laminaria should be trimmed for the length of this canal, and pushed to the fundus in strips. Between the strips tampons may be placed so as to continue aseptic. If sponges are employed, as they are generally too short, the fundus uteri is packed with cotton, and they are then inserted in such a way that the mass which they form is cylindrical. To effect this it is sufficient to place them like bottles in a store-room, alternately base and neck upwards.

Lowering of the Uterus.—When a uterus is situated high up, it is not always possible to reach the fundus, even by the introduction of several fingers. Digital investigations of the entire uterine cavity should nevertheless be made. As it is necessary to render these cases accessible, artificial prolapse must be induced, combined with dilatation. Vulliet uses, to effect this, strong claw-forceps, which he inserts into the vagina by the lateral openings of a bi-valve speculum, and which are caught on the lips of the cervix. Traction is performed in the direction of the pelvic axis. The ligaments of Douglas sometimes hinder the descent of the organ; tractions in this case have the effect of lengthening the segment situated underneath the insertion of these ligaments, while the superior segment remains *in situ*. It is therefore necessary that the vagina should be sufficiently dilated to permit of the introduction of the hand in order to control the descent of the uterus. When we have to do with an uterus very high up, it should not be lowered until after the maximum of dilatation. and then it must be aided by pressure on the uterus through the abdominal wall. Great dilatations which soften the uterus, as in a *post partum* condition, facilitate the depression of the high parts. and permits them to be brought into contact with the fingers in the interior of the organ. The surgeon should be aware that every uterus cannot be drawn down, and he should be careful not to exercise too strong traction. If the prolapse is to be of long duration, Vulliet always anæsthetises the patient; if not, he covers the cervix with a 4 per cent. cocaïn ointment twenty minutes before commencing the operation.

Incision.—The operation of incision is performed with the object of giving an ample opening to the tumour, by which its migration by expression through the natural passages is made easy. The incision should have a length equal to the greatest diameter of the new growth, and a depth including all the tissues separating it from the uterine cavity. Professor Vulliet has made a probe-pointed bistoury for this operation, with a blade concealed in a cylindrical handle; it is made to emerge or enter by means of a screw situated at the other extremity of the handle. This screw being graduated, indicates in millimetres the exact degree of protrusion of the blade. One or several fingers being introduced to the highest parts of the uterus, and a counter-pressure made on the abdomen, the guiding fingers are arranged parallel to the diameter of the tumour which seems the longest; then pushing the bistoury to the highest point, the blade is protruded from one-half to two centimetres, and an incision is made by withdrawing the instrument—the fingers placed on the back of the bistoury follow it. The incision is prolonged to the inferior extremity of the diameter. When the tumour forms a well-marked prominence on the side of the uterus it is easier to use the scissors. The base of the prominence facing the operator is attacked, and the "boutonnière" is enlarged from the front backwards. When the tumour is low one can operate with the help of the eye without lowering. The incision is not painful, and does not necessitate anæsthesia, and the hæmorrhage following this operation is of short duration. This fact will astonish those who have never performed a scarification of the uterus, a method inaugurated about the year 1840 by Amussat, who adopted it with a happy result in metrorrhagia. This paradox is explained by the fact that scarification diminishes passive congestion. It was by employing this procedure for stopping the hæmorrhage that Vulliet was led to perform his operation. When the incision is made, two alternatives present themselves—when there is a prominence of a part of the tumour, a partial or total enucleation is immediately performed; when the tumour does not project, enucleation should not be resorted to, as it would cause an useless traumatism. In the first case, a finger or a blunt spatula is passed between the lips of the incised mucous membrane, and an attempt is made to peel it out. When this is as complete as possible, the denuded neoplasm should be transfixed with forceps and the operation continued with scissors. When everything which can be reached is removed, the cavity left is stuffed with tampons, and left to nature to perform the elimination of the nucleus, the ablation of which is performed as in the following case. In the second alternative, where no prominence exists, once the incision is made expectant treatment alone is required. After some days (in my experience, two to fifteen) the tumour enters the opening made for it, and becomes transformed into a polypus, the pedicle being implanted on the sides of the incision (Case III.), where it forms a hernia from the opening, and becomes accessible to the hand and instruments of the surgeons; extirpation is then undertaken. The time for operation is often indicated by the occurrence of pains resembling those of labour. The patient should be prepared the evening before; food must not be taken, the abdomen should be free, and the bladder and rectum should be completely empty. Even this kind of intervention may give place to unseen eventualities, and the surgeon should therefore be prepared to meet them.

I now give a list of instruments and dressings that Professor Vulliet uses in this operative procedure:—

Bivalve speculum.
Sim's valve.
Lowering forceps.
Fixation forceps.
Forci-pressure forceps.
Long, straight, and curved scissors.
Bistouries.
Intra-uterine sound.
Serre-fine and holder.
Écraseur (Chassaignac's).
Dissection forceps.
Suture and ligature silk.
Needle-holder and needles.
Iodoform or iodol tampons.
Antiseptic wadding.
Iodoform gauze.
" , pulverised.
Corrosive sublimate (pastille or powder).
Carbolic acid.
Injection bag.
Chloroform, sulphuric ether, cocaïn, and inhaler.

To prevent loss of time, Vulliet disinfects the field of operation during the commencement of the administration of the anæsthetic. This consists in intra-uterine irrigations of corrosive sublimate of the strength of 1 in a 1,000. I would here say that we use chloroform at the commencement, and the narcosis is continued with ether.[a] When the patient is under the influence of the anæsthetic the uterus is lowered, and the forceps is given in charge to assistants. The local state is also examined for the last time. This examination might seem unnecesssary to those who are ignorant of the topographical modifications that these tumours undergo in a very short space of time. If an equator exists at the prominent part of the tumour the surgeon should try to pass the chain of the écraseur or different serre-nœuds over it, or even the galvano-caustic loop. Hæmorrhages after the section are never to be feared, and by Vulliet's method of tamponing, one is quickly master of the situation. If the base of the tumour is broad, or if it is not enucleated, Vulliet uses long, straight, or curved scissors, according to the circumstances; he slides them over his fingers and commences the section in the side facing the operator. An assistant exercises slight and repeated traction on the part of the new growth which prolapses outside of the walls, and brings it into reach of the operator either on one side or the other. When the section is circular, before completing it, the operator attacks the tumour higher up, and tries to enucleate it nearer the centre. Certain fibromata have a cone-shaped periphery for base, and a cavity at the summit. The extirpation of this kind of tumour is certainly more difficult. It necessitates a particular address, and, above all, a long practice in intra-uterine manœuvres. Such a tumour can never be removed at once; to try to do so would be an imprudence which might result in perforation of the uterus. It should be dissected by degrees. After removing all that is possible, the uterine cavity and vagina are then disinfected and stuffed with tampons, and the patient is put to bed. The dressings are changed every twenty-four or forty-eight hours. The rest of the neoplasm continues its migration, and after a number of days, varying between four to ten, another operation may be undertaken. Sometimes four *séances* are necessary to remove an entire neoplasm.

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[a] This method is that employed by Prof. Kocher, of Berne.—*Translator's note.*

Works Cited.

[The numbers correspond to those in the text.]

[1] Atlee. "Amer. Journal of Med. Science." April, 1845, and October, 1856.

[2] Maennel. "Prager Vierteljahrschrift." 1871–2. P. 29.

[3] Braun. "Wiener med. Woch." 1874. No. 39–41.

[4] Gusserow. "Die Neubildungen des Uterus." Stuttgart, 1878.

(*To be continued*).

Note.—The conclusion of the Article on the Surgery of the Brain, by Messrs. Stoker, Nugent, and O'Carroll, is unavoidably held over till next issue.—Ed.

GENERAL ANÆSTHESIA.

M. **Rickey** brought before the Biological Society of Paris an account of the anæsthetic effect of the following mixture when injected into the peritoneal cavity of a dog:—Hydrate of chloral, 50 grammes; acetate of morphin, 25 centigrammes; distilled water, 500 grammes—make a solution. The quantity used is 50 centigr. of chloral, and 0·0025 of morphin, for each kilogramme of the animal.—*La Presse Médicale Belge*, January 12th, 1890.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Anatomy of the Central Nervous Organs in Health and in Disease. By DR. HEINRICH OBERSTEINER. Translated, with Annotations and Additions, by ALEXANDER HILL, M.A., M.D., M.R.C.S. With 198 illustrations. London: Chas. Griffin & Co. 1890. Medium 8vo. Pp. 432.

THIS excellent translation of Professor Obersteiner's valuable book is a most important addition to English medical literature, and will be found of inestimable service by all students of anatomy and neurology.

There is no branch of anatomy so difficult and perplexing as that which deals with the minute structures of the nervous centres. Our knowledge of this most intricate part of the body is rapidly being extended by the labours of innumerable investigators all over the world. The works are of very unequal value, and are widely scattered through the periodical literature of many lands. A collection of all that is most important and best established of these writings, and the weaving of it into a continuous and connected whole, when done by a master of the subject, is a work of great value to everyone, and particularly to those whose circumstances do not allow them, themselves, to consult the original papers and monographs.

The work before us is something more than a mere translation. Dr. Hill tells us that he has "attempted to transpose its forms of expression into the English mode," and, we may add, with such success that the pages read as if they had been written originally in our own language. Furthermore, Professor Obersteiner has furnished explanations, alterations, and additions to the German text, so as to give the English version the value of a new edition, while the translator himself, whose works on the nervous system are so well known, has made numerous additions, giving his own philosophical speculations on the meaning of many obscure structural points, and the results of his own investigations on the comparative anatomy of the brain. He has also added twenty-two illustrations to those contained in the original work.

After a short introduction, giving the plan of the book, we find, in the first section, a description of the most important methods, histological and others, which may be employed for the examination of the central nervous system. These directions, although briefly given, will be found of much value by all workers in this branch of anatomy.

The second section deals with the morphology of the central nervous system. Here we have an account by the translator of the researches of His on the histogeny of the brain and cord. Then the gross anatomy of these points is admirably described.

The histological elements of the nervous system form the subject of the third section, while in the fourth section, after an account of the more important schemes of the nervous centres which have been proposed by Luys, Meynert, Hill, Aeby, and Flechsig, the topography of the spinal cord is treated of, as shown in a series of cross sections.

In the fifth section a similar study is made of the topography of the brain, illustrated by a large number of very beautiful drawings of cross sections.

In the sixth section, on the course of the fibres, a description is given of the tracts in the cord, of the origin of the spinal nerves, of the origin and intra-central course of each of the cranial nerves, and the best account we know of the course and connections of the fibres in the cerebellum and cerebrum.

The seventh and final section deals with the cavities, meninges, and vessels of the central nervous system.

In an appendix the translator gives the grounds on which rest his ingenious theory of the rotation which he supposes the mammalian brain to undergo during its development. "The rotation produces a loop or kink, giving to the whole brain somewhat the form of a ram's horn, and bringing the part which was at first in front, on to the under side of the back." This remarkable theory has many facts in its support—such as the attachment of the olfactory nerve, the evidence of rotation in the lateral portion of the anterior commissure, the connection of the most anteriorly situated nerves, as the optic and olfactory, with the most posterior parts of the cerebral cortex, while the posterior nerves, as the fifth and eighth, are attached in front near the fissure of Sylvius, and the spinal nerves in the Rolandic convolutions. For other arguments drawn from minute anatomy, ontogeny and phylogeny, we must refer to the highly suggestive and interesting article itself.

The drawings with which the text of this work is illustrated are for the most part of great beauty and clearness. In the cross sections of the medulla and brain one half of the drawing is given in outline only, and serves as a plan or map of the other half, in which all the details of structure are filled in. In the explanations of most of the drawings the reference letters are arranged alphabetically, which greatly facilitates the study of the figures.

The volume concludes with an admirably arranged glossarial index, in which are given the German names of the different parts with the English equivalents used in the translation; also Latin and English names for parts of the central nervous system, with common synonyms and their German and French equivalents.

It is to be regretted that in a work, otherwise so complete, no bibliographical references are given. Author's names occur abundantly, and everyone receives due credit for his work; but, in our opinion, the value of the book would be enormously increased if indications were given to the sources from which the different statements are drawn, so that anyone wishing to follow up any point more fully could be directed to the papers in which it is dealt with.

As regards the pathological sections we have not much to say. The descriptions of the changes which the normal structures suffer in disease are well given, so far as they go, but they appear to us to be too short and sketchy to be of much value to the pathological investigator.

Lymph-stasis, or Retardation of Lymph, as an Element in the Causation of Disease, especially in regard to Scrofula and Tuberculosis. By Wayland C. Chaffey, M.D. London; Physician to the Royal Alexandra Hospital for Sick Children, Brighton, &c. London: H. K. Lewis. 1890. Pp. 73.

In this work Dr. Chaffey attempts to prove that in many diseases the real exciting cause is a retardation of the lymph-stream, and consequent lowering of the vitality of the regions of the body, the lymphatics of which have been obstructed. Thus, in tuberculosis he believes the first thing that occurs is that a gland becomes caseous, probably owing to the action of tubercle bacilli; the caseation causes lymph-stasis, and the part in which this lymph-stasis occurs is thereby rendered specially vulnerable to disease-germs, such as the tubercle bacillus, of which germ he believes there is a second invasion or inoculation from without. Thus, in intestinal tuberculosis he believes the primary lesion is caseation of a mesenteric gland, and that the intestinal ulceration is due to the localised lymph-stasis caused thereby. So in the lungs caseation of a bronchial gland occurs; lymph-stasis in some part of a lung is the immediate result, and consolidation, cavities, &c., the remote consequence.

This theory is interesting, but unfortunately it seems to lack proof. Dr. Chaffey considers the lymph glands become caseous before other organs and tissues are affected, because the lesions in the glands are often more extensive, and therefore seem older than lesions elsewhere. But he seems to forget that extent and duration of disease are by no means the same thing. Instead of proofs we read that he "was induced to believe" various strange things.

We may mention one example of his unproved suggestions. He wishes us to believe that the eruption in typhoid fever appears on the abdomen because of the fulness of the deep system of abdominal lymph channels; while the rash in measles comes out first on the forehead because the ocular and nasal catarrh have interfered with the lymph circulation of this region.

Cyclopædia of the Diseases of Children: Medical and Surgical. The Articles written especially for the work by American, British, and Canadian Authors. Edited by JOHN M. KEATING, M.D. Vol. III. Illustrated. Philadelphia: J. B. Lippincott Company. 1890. 8vo. Pp. 1371.

THE third volume of this splendid work is arranged in four parts, in which are discussed respectively diseases of the digestive system, diseases of the genito-urinary organs, the surgery of childhood, and diseases of the osseous system and of the joints. In the very centre of the volume we come upon an elaborate article by Dr. J. P. Crozer Griffith, of Philadelphia, on "Diseases of the Blood and Blood-making Apparatus." This is acknowledged to be out of its place in a foot-note, to the effect that it was impossible to insert it in the second volume, to which it belongs, and Dr. Griffith was asked to undertake its preparation at a late date. Although the continuity of the volume is in this way impaired, its value to the reader is actually enhanced. The article is placed as it is because the second half of the volume is devoted to surgery, while the subject of the blood belongs more immediately to medicine.

The volume before us opens auspiciously with an excellent article on "Functional Disorders of the Stomach," by Dr. William Pepper, Provost and Professor of Theory and Practice of Medicine in the University of Pennsylvania. We cannot speak too highly of this contribution, and in particular of its therapeutical sections. The punctilious accuracy of the author is seen at page 15 in the expression "dressed from neck to toes," instead of "dressed from head to foot." It is refreshing to find quinine and cod-liver oil filling an honoured niche in the author's Temple of Esculapius. Of the latter remedy he writes—"It is often found, even when it could scarcely be expected, that cod-liver oil is well received and digested. It then proves of the utmost value, and remarkable improvement follows its use. It is best given in the form of a delicate, freshly made emulsion with lacto-phosphate of lime."

The maladies discussed by Dr. Pepper are Dyspepsia—a comprehensive term, embracing "all those clinical conditions, frequently presenting complicated symptoms, which are dependent upon impaired gastric digestion, provided that there is no lesion of the stomach more serious than congestion or subacute catarrhal inflammation"—cyclical vomiting and gastralgia—this last a rare affection in children.

One hundred pages are devoted to an elaborate article on the Diarrhœal Diseases, by Dr. L. Emmett Holt. In an introduction to his essay, the author explains that he has, to our mind properly, abandoned the use of the term "dysentery" as signifying a special form of disease, while he retains the terms "dysenteric symptoms" and "dysenteric stools" in connection with certain forms of colitis or of entero-colitis, in which the inflammatory process is principally in the lower fourth of the large intestine. Alluding to treatment, he wisely observes—"The day of composite prescriptions, containing half a dozen different ingredients or more, is fast passing away. The administration in diarrhœa of mixtures containing an opiate, an astringent, an alkali, a stimulant, an antiseptic, and a ferment (and many such are constantly employed) is not only unscientific, but also useless. . . . Simple prescribing is everywhere desirable, especially so in children, and most of all in diseases of the gastro-intestinal tract, where unnecessary drug-giving is almost certain to do harm."

Dr. Holt treats his great subject under these headings—the general ætiology of diarrhœal diseases, the relation of bacteria to them, their pathological anatomy (illustrated by a series of highly-artistic reproductions of photographs taken for the author by Mr. O. G. Mason, of the Photographic Department of Bellevue Hospital, New York), the stools in diarrhœal diseases, their general prophylaxis; simple diarrhœa, acute mycotic diarrhœa, or diarrhœa of bacteria origin; acute entero-colitis, and chronic diarrhœa. We think there is a little too much hair-splitting in the differentiation of some varieties of diarrhœa included under these headings. For example, we cannot altogether agree with the author that "clinically three quite distinct forms (of acute entero-colitis) are met with; first, the dysenteric form, which is primary; secondly, the more acute variety, which usually begins as an acute dyspeptic diarrhœa, or follows cholera infantum; thirdly, a subacute variety, which may follow either of the foregoing." Here a far simpler division would be into primary and secondary entero-colitis, or ileo-colitis, and under it the relation of the latter form to acute mycotic diarrhœa could equally well be described.

Another able contribution to this volume is the section on "Acute and Chronic Constipation," by Dr. Charles Warrington Earle, of Chicago. We have been greatly struck by his recommendation to give pure water internally in constipation, where an insufficiency of water in a child's system is suspected as a cause of the condition. "It is an affliction," writes Dr. Earle, "to deprive a child of water. It is not only a cause of constipation, but the deprivation of water sometimes amounts to absolute suffering on the part of the child. A baby is not always hungry when it cries; it may be thirsty. To feed a child when it is only thirsty, and not give it water, will sometimes aggravate a constipation. Let it be remembered, then, that one of the most efficient remedies in the treatment of children is water given two or three times during the twenty-four hours. To a child accustomed to a mixed diet, in place of water oatmeal-water may be given for a time, in order that the child may be nursed less frequently."

Within the limits of a bibliographical notice it would be impossible to do justice to the many contributions of value which find a place in this third volume of the Cyclopædia. Dr. A. Jacobi writes on "Tabes Mesenterica," Dr. William J. Taylor on "Hernia in Children," Dr. W. W. Keen on "Intestinal Obstruction," Dr. Henry Ashby on "Peritonitis," Dr. Henry R. Wharton contributes a fully-illustrated and most interesting account of congenital abnormalities of the intestines, including the rectum and anus. Dr. Henry Morris, Lecturer on Surgery in the Middlesex Hospital, has a long article on "Surgical Diseases of the Kidney." Dr. A. Jacobi gives a brief account of "Enuresis." These are but a few of many monographs included in the volume. One of the longest is an article on "Diseases of the Blood and Blood-making Apparatus," by Dr. J. P. Crozer Griffith, of which mention has already been made. It is illustrated with a series of beautifully-coloured plates, showing the microscopical appearances in poikilocytosis, melanæmia, spirillum fever, leukæmia, and pernicious anæmia.

In Part III., on "Surgery," Dr. Gibney gives an account of lateral and functional curvatures of the spine, and Dr. A. Sydney Roberts discusses Pott's disease of the spine. Dr. John H. Packard writes a monograph of rare merit on Fractures and Dislocation, and Dr. Charles T. Poore ably treats of Disease of the Major Articulations. The volume closes with an article on the sad topic of "Amputations," by Dr. William Barton Hopkins.

We look forward with pleasing anticipations to the publication of the fourth and concluding volume of the Cyclopædia.

Transactions of the American Orthopædic Association. Vol. I. Published by the Association. 1889.

CIVILISATION, with its many blessings, is not an unmixed good; by prolonging the lives of the delicate it perpetuates physical weakness, and tends to perpetuate the survival of the unfit. Again, the fashions that prevail amongst highly-civilised peoples are such as often seriously interfere with the functional activity of parts of the body, and especially liable to this interference are the muscles of the foot. Boots and the dancing-master have made us familiar with the chiropodist, the orthopædist, not to mention the many philanthropists who, sympathising with the distorted, pained, and too often unsightly foot, produce the innumerable corn-cures and bunion-plasters whose praises adorn the advertising pages of our daily contemporaries.

We are not the only sufferers from fashion's dictates. The volume before us, in a number of beautifully-executed and useful wood-cuts, tells how common deformities of the feet and legs are amongst our Transatlantic brethren.

The papers are beyond the average in excellence, and the writers are candid enough to give prominence to the difficulties which beset the methods recommended by them. We would like to see this spirit more universal. The volume has the great advantage of containing the discussions, so that the reader knows how any novel treatment recommended is received, and has not only the opinion of the author, but also that of other specialists whose reputations are already made on this side the water. Indeed, the discussions are most interesting reading, the criticisms of the different papers being pointed, searching, and happily brief—free from the mutual admiration, self-laudation, and discursiveness that is too common nearer home.

The volume is of much value to all interested in orthopædic surgery, and indeed to general surgeons, for it treats of the early stages of Pott's disease, torticollis, lumbar abscess, and unilateral hypertrophy, and to all who practise surgery we recommend it. And we would especially draw our readers' attention to Dr. Whitman's article, "Observations on Seventy-five Cases of Club Foot," Dr. Bradford's, entitled, "Case of Functional Torticollis from Defective Eyesight," and that of Dr. Packard, "Hypertrophy of One Lower Extremity." If space permitted we would give a summary of Dr. Dixon Jones' article, "Etiology and Pathology of Rachitic Deformity," but not being able to do so we must be content to draw our readers' attention to the article as one marked by a knowledge of the subject, and full of useful and practical information.

Maladie de la Peau dite Maladie de Paget. Contribution à l'étude des Psorospermoses cutanées et de certaines formes de Cancer. Par le DR. LOUIS WICKHAM. Avec 4 Planches hors texte. Pp. 186. Paris: G. Masson. 1890.

M. LOUIS WICKHAM has followed up in this monograph the line of study opened up a year ago by M. Darier, by his discoveries of the association of species of coccidia—lowly animal parasites belonging to the class of *Sporozoa*—with a peculiar form of skin affection, which he described as *psorospermose folliculaire végétante*, and also with that uncommon disease of the female breast described by Paget, and variously known as "eczema of the nipple," and "malignant papillary dermatitis."

M. Wickham bases his thesis on the observation of six cases, the records of which are models of what clinical reporting should be—terse, graphic, and complete. An additional microscopic examination was made on materials which were supplied by Dr. Radcliffe Crocker, who recognised on the scrotum of a patient a disease identical with that which occurs in the breast, and in which parasites presenting similar characteristics were found by the author. The occurrence of these organisms in association with epithelial proliferations, and in diseases which have a recognised tendency to merge into a malignant type, opens up a wide field of speculation in connection with the causation of cancers.

Though this must remain the classical monograph on "Paget's disease," both from the thoroughness with which the material is worked up, and the excellence of the plates accompanying it, as well as from the distinguished collaboration M. Wickham was fortunate enough to secure, yet in a work of such a nature we should have expected further references to the literature of this group of the *Gregarinidæ* in relation to lower animal forms, and to the observations of recent observers on the occurrence of analogous parasitic forms in certain neoplasms in the human subject. The conclusions of Neisser as to the coccidial origin of the disease known in these countries, after Bateman, as *Molluscum contagiosum*, but in Germany as *Epithelioma contagiosum*, are hesitatingly accepted, though no doubt is thrown on Darier's follicular affections. So long ago as 1874 Bollinger recognised the true nature of the so-called "molluscum-corpuscles," and proved them to be lowly animal parasites, and showed the close relationship of this disease to the *molluscum* of fowl (Geflügelpocken). Nor is mention made of the numerous observations on the occurrence of coccidia in the human liver, especially the recent and conclusive researches of Podwyssozki. And as regards the ætiology of cancer, the discovery by Pfeiffer of similar organisms in secondary nodules of cancer, and their occurrence in cancers of the stomach, of the rectum, and of the mamma, recently recorded by Thoma, are certainly deserving of notice in connection with the author's speculations in this direction. Moreover, the interesting cases recorded by some English authors are strangely overlooked. Mr. Bland Sutton exhibited, at the Pathological Society in December, 1889, a kidney and ureter, which were studded with "psorosperm-saccules," and at the same meeting Mr. Silcock described a remarkable case of psorospermosis, in which disseminated nodules were found in the intestine, in the liver, and in the spleen, these organs being markedly enlarged, and the naked eye lesions presenting a striking resemblance to those found in cases of tuberculosis.

A point of much interest is one to which attention has already been drawn by Darier, and further developed here by M. Wickham—viz., the relation of the coccidia to the formation of the epidermic "pearls," or "globes" as they are sometimes called. In many instances it can be proved to demonstration that the centre of these cell-nests is formed by one or more coccidia, lying within an epithelial cell, and displacing the nucleus and protoplasm to one side, and every stage in the lamination and flattening, and subsequent cornification of the surrounding epithelium can be accurately traced. The difference exhibited in many cases by these apparent "nuclei," both in the nature of their protoplasm and in their reaction to staining agents, has long been familiar to histologists, and has been variously accounted for by a supposed "colloid," or allied degeneration, or as the result of an "endogenous cellular formation" (Virchow, of undetermined character. The discovery of the presence of coccidia as a centre of epithelial disturbance at least affords a more probable theory of cause and effect than any hitherto in the field. Again, the superficial appearances presented in these cases, so much resembling those met with in certain cases of eczema as to lead to the application of this name to the disease, at least affords presumptive evidence in support of the view which is rapidly gaining ground with dermatologists that, in the majority of instances of eczema, we have to deal with a catarrh of the skin which is essentially of *parasitic* origin, though from the multitude of cutaneous saprophytes, no special organism has yet been isolated.

Cultivation and inoculation experiments, both on himself and on animals, have so far yielded in M. Wickham's hands barren results. But this is not to be wondered at when it is considered how little is known concerning the conditions of animal parasitism, or of those factors of epithelial growth or degeneration which favour their implantation and development. Much remains to be done by future observation and research, and we feel certain that in many quarters pathologists and biologists will react to the stimulus of the work before us. As a record of careful and painstaking observation, of fully weighed and valued evidence, and of conclusions which seem at least justified in the light of our present knowledge, the work is in the highest degree deserving of commendation. It is the outcome of the recent effort of French dermatology to regain its pristine eminence, and we shall look for much more of such thorough and valuable work from the same writer at no distant date.

Essay on Medical Pneumatology; a Physiological, Clinical, and Therapeutic Investigation of the Gases. By J. N. Demarquay, Surgeon to the Municipal Hospital, Paris, and of the Council of State; Member of the Imperial Society of Surgery; Correspondent of the Academies of Belgium, Turin, Munich, &c.; Officer of the Legion of Honour; Chevalier of the Orders of Isabella-the-Catholic, and of the Conception, of Portugal, &c. Translated, with Notes, Additions, and Omissions, by Samuel S. Wallian, A.M., M.D., Member of the American Medical Association; ex-President of the Medical Association of Northern New York; Member of the New York County Medical Society, &c., &c. Illustrated with Fine Wood Engravings. Philadelphia and London: F. A. Davis. 1889.

About one hundred years ago our foregoers in medicine were greatly exercised on the question of the part played in the genesis and cure of disease by the then newly-discovered gases—oxygen, carbonic acid, nitrogen, and soforth.

The study of the therapeutic action of the gases fell into able hands—Priestley, Beddoes, Watt, Davy, and Cavendish; nevertheless, the practical outcome of their labours in this direction during their lifetime was little. The greatness of their purely chemical investigations diverted attention from the subject.

Their labours were not, however, lost; for, as Mr. Foy has shown in his recently-published book on Anæsthetics, it was the testing of the physiological action of the gases, and their therapeutic use, that brought about the use of chloroform, ether, and other of our modern anæsthetics.

How the Academy of Medicine of France and different learned bodies even during the Revolution gave prizes and encouraged research in the medicinal properties of the new gases! Dumas translated Thomas Reid's work on the therapeutic value of oxygen gas in cases of phthisis; and Lavoisier repeated Priestley's experiment of inhaling the gas. Fourcroy, chemist, physician, philosopher, hailed the discovery with delight. He believed a new epoch had commenced in medical science, and in his "Essay on the

Application of Chemistry to the Art of Healing" he writes:—"In a word, I long for an unmistakable revolution in the theory of medicine. I invoke it through my prayers; I have announced it for the last fifteen years in my lectures; I proclaim it in all my works; I will hasten its initiation with all my powers, with all my faculties; but I desire that it shall be a gradual, a deliberative, and judicious revolution."

The cynical age we live in would not applaud such enthusiasm as Fourcroy exhibits, but in the last decade of the eighteenth century men having shaken themselves free from superstition, were intoxicated with freedom and enthusiastic in every research.

The history of the progress of the application of the newly-discovered chemicals to medicine is well told, and equally good is the author's description of the therapeutic value of the gases in modern practice. In both an intimate knowledge of the subject is in evidence, and a century of medical progress is agreeably and clearly narrated.

We like the book and heartily recommend it to our readers. We have only one fault to find, and that can easily be remedied in the next edition—to wit, the non-mention of the use of oxygen gas in Dublin, in 1817, by Dr. Robert Reid, an account of which may be found at page 101 of the "Transactions of the Association of Fellows and Licentiates of the King and Queen's College of Physicians in Ireland," Volume I., 1817.

A New Medical Dictionary: including all the Words and Phrases used in Medicine, with their proper Pronunciation and Definitions, based on Recent Medical Literature. By GEORGE M. GOULD, B.A., M.D.; Ophthalmic Surgeon to the Philadelphia Hospital, and Clinical Chief, Ophthalmological Department, German Hospital, Philadelphia. London: H. K. Lewis. 1890.

THE distinct purpose Dr. Gould had in writing his Medical Dictionary, he states, was—

1. To include new words and phrases created during the past ten years.

2. To frame all definitions by the direct aid of new, standard, and authoritative works.

3. To omit obsolete words.

4. To make a volume that will answer the needs of the medical student and busy practitioner.

Again and again we have submitted the book to tests, and we found it reliable and full, every page giving proof of careful editing and research.

It is sufficiently large to meet the requirements of any ordinary practitioner. Of course the bespectacled, polysyllabic, home-from-Berlin young man could not take pleasure or feel satisfied in anything short of a multi-voluminous work; but, like the Heathen, he is a law unto himself, and may safely be left out of calculation in practical therapeutics.

In addition to the dictionary proper we have elaborate tables of bacilli, micrococci, leucomaïns, and ptomaïns, and all such infinitesimal creatures as we to-day build laboratories to hatch; tables with analyses of American mineral waters, some of which waters will soon, we believe, be found in our midst; and tables of vital statistics.

All this great mass of information is excellently arranged, so that the reader has no difficulty in at once finding what he wants, and the type is beautifully clear, there being no blurring, so that reading is a pleasure.

As we turn over the pages we are grateful for the free trade system that admits, free of duty, such a useful and desirable book.

On the Treatment of Diseases of the Nervous System. By C. W. SUCKLING, M.D. (Lond.), M.R.C.P.; Professor of Materia Medica and Therapeutics at the Queen's College; Physician to the Queen's Hospital, Birmingham. London: H. K. Lewis. 1890. Pp. 289.

THIS work consists of a series of articles on the treatment of the Diseases of the Nervous System, and of many symptoms connected therewith. The articles are arranged in alphabetical order, so that it is very easy to find the treatment recommended for any given disease.

The articles on each disease are fairly full and complete, and most methods of treatment are mentioned. We are, however, somewhat disappointed to find the indications for a given mode of treatment in many cases not laid down very precisely. Several drugs are mentioned, and the practitioner is allowed to take his choice between them without receiving much assistance from Dr. Suckling's experience. The dose and manner of administration are in some cases, too, rather vaguely mentioned. For example, in the article on Progressive Muscular Atrophy, we read, "Arsenic and strychnine are potent drugs, and are best administered hypodermically." To many readers more exact directions would have been more useful.

Dr. Suckling considers massage of great use in many cases of nervous disease; he says the *séance* should rarely exceed a quarter of an hour, and that the prevalent idea that it should last an hour is quite wrong. Suspension in Locomotor Ataxy, he says, is a most useful proceeding, often relieving the most distressing symptoms, but no instance of actual cure has been reported. It acts probably by stretching the meninges and nerve roots, and by breaking down adhesions, whereby the blood-supply is improved. The duration of suspension should not exceed half a minute at first, and it should take place only every second day. Afterwards the time may be increased to two minutes, and the suspension may be made daily.

Dr. Suckling's ideas as to what are or are not diseases of the nervous system are sometimes curious. There is an article on "Colic," while such an essentially neurotic affection as Herpes Zoster is entirely omitted.

The printing and paper are excellent. We have noticed only one typographical mistake. Oniomania (madness from indulgence in wine) should, of course, be oinomania.

Should Hypnotism have a recognised place in Ordinary Therapeutics? By NORMAN KERR, M.D., F.L.S.; Fellow of the Medical Society of London; President, Society for the Study of Inebriety; Vice-President, International Congress of Medical Jurisprudence, &c. London: H. K. Lewis. 1890.

IT is required of an author that he shall either add something to the information known on the subject on which he writes, or that he shall so dish up old facts that they shall be appetising. But alas! our societies have done much to injure literature. Every practitioner would now be known as an author. The craving to see their names in print has induced "authors" to pay needy scribes "whose poverty but not their will" consented to build up a reputation for very mediocre, though otherwise distinguished, members of the profession.

We suppose all associations are liable to this evil, and certainly none more so than the British Medical Association. We cannot imagine any ordinary individual reading the proceedings of a few of the meetings and surviving. The majority of the papers are as tasteless as re-hashed cabbage. Members determine to read a paper. Once read, it is published in the Journal of the Association, and the member is an author. Members are incited by example to write when they have nothing but shreds and scraps that fall from other men's tables. Of this class appears to us Dr. Kerr's pamphlet—padding and weak generalisations, containing nothing to justify any man giving good coin for a copy.

RECENT WORKS ON WINTER HEALTH-RESORTS.

1. *Madeira and the Canary Islands.* By A. Samler Brown. London: Sampson Low, Marston, Searle, & Rivington. Second Edition. 1890. 8vo. Pp. 130.
2. *The "J. E. M." Guide to Davos-Platz.* Edited by J. E. Muddock, F.R.G.S. London: Simpkin, Marshall, Hamilton, Kent, & Co. Fourth Edition. 1890. 8vo. Pp. 154.

Standing on the threshold of another winter, we may with singular propriety draw attention at this time to these guide-books to what are among the most popular health-resorts within the reach of European invalids.

1. Mr. A. Samler Brown has succeeded in preparing for the use of invalids and tourists an eminently practical and useful guide to Madeira and the Canary Islands. Commencing with a description of the best way in which to visit the islands, the author proceeds to give directions as to outfit and full information about steamboat routes, coinage, measures, telegraph and postal arrangements, and so on. The topics afterwards discussed are—Madeira and the Canary Islands, their history; and then in detail, Madeira, Palma. Hierro, Gomera, Teneriffe, Grand Canary, Fuerteventura, and Lanzarote. The book is illustrated with nine very clear maps, and at the end contains a novel feature in the shape of numerous local advertisements, abounding with information for visitors to the "Fortunate Isles."

2. Ten years have elapsed since the first edition of the "J. E. M." Guide to Davos saw the light. They have been very eventful years in the history of the now far-famed Alpine health-resort. "A complete and thorough system of drainage has been carried out; the once unruly and malaria-breeding river has been

straightened and confined between massive stone walls until it has the appearance of a canal; a new supply of magnificently pure water has been brought down from a mountain pass; the electric light is used for lighting the roads and streets; the once tortuous side paths have been straightened and widened; laws have been enacted and are rigorously enforced for regulating the sanitary condition of the place; handsome shops have sprung up," and, to crown all, visitors are now carried to Davos-Platz in luxurious railway carriages, the line from Klosters having been opened in July of the present year. The Guide is, in this fourth edition, fully brought up to date, with a chart of the new drainage works, and a plan of the new railway. Its pages are enriched with analytical notes on the food, air, water, and climate of Davos, by Mr. Philip Holland, F.C.S., Analytical Chemist, and Public Analyst for Southport.

Manual of Urine Testing: including the Physical Characters, Qualitative and Quantitative Examination of the Urine; together with the Clinical Information to be derived therefrom. Edited by JOHN SCOTT, B.A., and Undergraduate in Medicine, R.U.I.; Scholar and Prizeman in Medicine, Queen's College, Belfast. Belfast: W. Mullan & Sons. 1890. Pp. 25.

THIS clever and useful booklet affords an apt illustration of the saying "Multum in Parvo." The lengthy and somewhat pretentious title would lead one to suppose that he was about to consult a portly tome of some 800 or 1000 pages; but, instead of this, there falls into his hands a tiny pamphlet of 25 duodecimo pages.

In the preface Mr. Scott explains that his object is to furnish the student and busy medical practitioner with a handy and a reliable guide to the examination of the urine—as he well observes, an important branch of clinical study. We have only to say that Mr. Scott does infinite credit in his booklet to the practical instruction he acknowledges to have received on the subject of urine-testing from Dr. Henry O'Neill in the wards of the Royal Hospital, Belfast.

After some introductory remarks of great value, Mr. Scott summarises the chief facts in the qualitative and quantitative examination of the urine. The work is brought thoroughly up to date. For example, the reaction of the urine of typhoid fever, described by Ehrlich, is given as follows on page 8 :—

"Add 1. Saturated solution of sulphanilic acid in dilute (1 in 20) hydrochloric acid—Excess.

"2. 0·5 per cent. solution of sodic nitrite in distilled water—Defect.

"3. Strong ammonia—until alkaline.

"*Equal to* ruby red colour, with pink froth on shaking.

"N.B.—1 and 2 must be fresh, especially 2, which cannot be depended on for more than a week."

This quotation will give a good general idea of the style of the work, which is written in the most condensed style. It is due to this circumstance that occasionally the sense, while clear, is not well conveyed to the reader. For example, we read that the urine is high-coloured (reddish yellow to yellow) "after ingestion of much *food* or exposure to *heat* (*i.e.*, perspiration). It is found also in fevers and in disorders of liver" (page 9). What Mr. Scott means to convey is, of course, that in the presence of free perspiration—often caused by exposure to heat—the colour of the more concentrated urine is high—a physical character which belongs also to the urine in febrile as well as in certain hepatic diseases.

Viewed as a whole, however, Mr. Scott's handy little book cannot fail to give satisfaction—more particularly in regard to the third and concluding portion, which is illustrated with drawings of Gerrard's ureometer, Southall's ureometer, Esbach's albuminometer, and Gerrard's glycosometer. We heartily recommend the manual to hospital physicians and clinical students alike.

Revue Internationale de Bibliographie Médicale, Pharmaceutique, et Vétérinaire. Dirigée par le DOCTEUR JULES ROUVIER, Professeur de Clinique Obstetricale et Gynécologique à la Faculté Française de Médecine de Beyrouth, &c. Paris: Libraire Médicale Vve Jacques Lechevalier, 23 Rue Racine.

THOSE of our readers who read the *Index Medicus* will recognise in the present *Revue Internationale de Bibliographie* a work of a very similar nature. The present number consists of 284 pages, printed in good clear type. The arrangement is alphabetical.

Medical authors will find the Revue of great assistance, as by its aid the bibliography of any subject can be brought up to date, and by consulting it there is little risk of overlooking any work or paper of importance.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.R.C.P.I.
General Secretary—W. THOMSON, M.D.

SECTION OF SURGERY.

President—AUSTIN MELDON, President of the Royal College of Surgeons in Ireland.
Sectional Secretary—MR. W. THORNLEY STOKER.

Friday, March 28, 1890.

The PRESIDENT in the Chair.

Cases of Cicatricial Stricture of the Œsophagus.

MR. KENDAL FRANKS read a paper, embodying the histories of four cases of cicatricial stricture of the œsophagus. The first case was that of a girl, aged twenty, the details of which were published in the *Medical Press and Circular* in 1882. The treatment employed in this case was forcible rupture of the stricture, with the subsequent daily passage of bougies. The treatment occupied over two months. Now, at the end of eight years, she is perfectly well.

The second case was that of a lady, aged thirty, who came under treatment in December, 1883. The history of dysphagia extended over nearly 14 years. The treatment employed was gradual dilatation with bougies, and it occupied nearly seven months. She has enjoyed perfect freedom from dysphagia ever since. A bougie is passed for her about twice a year.

The third case was that of a lady, aged forty-three, who came under treatment in June, 1886, for dysphagia, dating back for nearly 15 years. The treatment adopted was electrolysis, with the occasional passage of bougies. The treatment was employed on sixteen separate days. She has had no difficulty in swallowing since then.

The fourth case was that of a railway guard, aged sixty-eight, who came up for treatment on the 17th of December last. The history of dysphagia went back seven or eight years. Two strictures existed, one 4 centimetres below the upper end of the œsophagus, the other 4–6 centimetres above the lower end. The treatment adopted was immediate rupture of six other strictures, the passage of bougies daily, and electrolysis. The treatment occupied one month. The patient gained 28 lbs. weight in less than three months, and could swallow his food with ease. The passage of a large bougie is employed every second day still by Dr. Ford, of Waterford, under whose care the patient is at present.

Mr. Kendal Franks pointed out the remarkable contrast in the duration of the treatment between the cases in which electrolysis was employed, and those in which it was not, but observed that further evidence was required to ascertain if this contrast were constant.

Mr. Hamilton said cases of stricture of the œsophagus were by no means common, and one of the most mysterious problems in surgery was how they took place at all. Of the three methods of treatment submitted for consideration in Mr. Franks' paper, he would adopt that of gradual dilatation, or that failing, then that of electrolysis, rather than the method of sudden and rapid dilatation by means of the instrument exhibited.

Mr. W. Thornley Stoker concurred with Mr. Hamilton. The treatment which he had been in the habit of using was that of gradual dilatation, and he condemned that of internal œsophagotomy.

Mr. Edgar Flinn said he saw the second patient whose case had been described. She was suffering from an ordinary catarrh, but she was in perfect health, save nervous debility, being apprehensive of a return of the stricture.

Mr. T. Myles, without questioning the accuracy of Mr. Franks' diagnosis, would feel hardly justified in assuming that all the cases described were cases of purely fibrous strictures. He, too, agreed with Mr. Hamilton as to the inadvisability either of cutting operations on the œsophagus, or of forcible dilatation, as its walls were thin, unresisting, and easily penetrable, even with the point of a comparatively blunt instrument.

Mr. Franks, in reply, said the instrument which he used, dilated to its fullest extent, would not injure any normal œsophagus, as being within the size of the normal œsophagus in health. As regards diagnosis, the history of his cases differed entirely from that of neurotic cases in which the dysphagia was intermittent; and, as a rule, in œsophageal strictures the diagnosis could not be certain without passing a bougie He did not think he had been mistaken in his diagnosis, and he had no doubt that the cases were cases of cicatricial or fibrous stricture. The electrolysis facilitates the use of the bougies.

A Rare Case of Congenital Form of Ranula.

Mr. Edgar Flinn read a paper on the above subject. [It will be found in the Number of this Journal for October, 1890, page 312.]

Mr. W. Thornley Stoker exhibited the photograph of a girl, aged four, who had a congenital tumour occupying the tongue and floor of the mouth to such an extent that she could not shut her mouth since her birth. Having cut into it he found it was a cyst, a ranula, filled with a thick fluid of abominable odour. He drained it by a large drainage-tube passed transversely through the floor of the mouth below the tongue, but no sooner was the tube taken out than the sac filled again with pus. At length he drained it from the floor under the tongue, and it healed with ease and rapidity. Owing to the fact that the child had never been able to close the mouth, the molar teeth struck each other, while the upper and lower incisors were an inch distant, the jaw retaining its abnormal position. He proposed to put an elastic apparatus on at night, with a view to raise the front of the jaw by gradual pressure.

Mr. Hamilton also related an instance of the value of treatment by a bold external incision for ranula, emptying the tumour by means of a free incision along the base of the jaw.

Mr. Flinn, in reply, regretted that the urgency of his case at the time prevented him from getting the patient photographed.

The Section adjourned.

SECTION OF PATHOLOGY.

President—E. H. Bennett, M.D.
Sectional Secretary—J. B. Story, F.R.C.S.I.

Friday, May 2, 1890.

The President in the Chair.

Diphtheritic Micro-organisms.

Dr. M'Weeney showed a section through the epiglottis of a child who had died in the Mater Misericordiæ Hospital from post-scarlatinal diphtheria. The patient had been admitted in the desquamation stage of scarlatina suffering from a bad throat and albuminuria, After death the mucous membrane of the upper part of the larynx was found coated with a thin layer of greenish-gray exudation.

The sections exhibited showed numerous micro-organisms in irregular masses, and also scattered through the almost structureless membranous exudation. Some of these were cocci, others bacilli; the cocci were scattered or in pairs, the bacilli were smaller in size than the Klebs-

Löffler diphtheria bacillus, and were certainly not the same species, as, in addition to the difference in size, they also differed in the fact that the bacillus found by Dr. M'Weeney stains readily by Gram's method, whereas the Klebs-Löffler organism is at once decolorised by iodide of potassium. Cornil and Babès also describe organisms found in cases of pseudo-diphtheritic laryngitis after scarlatina, but they seem to have found chiefly cocci.

Dr. M'Weeney also showed a cover-glass preparation of a pure culture of the Klebs-Löffler diphtheria-bacillus, showing the so-called "involution forms," and referred to the recent researches of Spronck into the subject, which have quite established its pathogenicity. A sterile filtrate of a pure culture will cause paralysis, closely resembling the post-diphtheritic in the human subject, and also albuminuria in rabbits.

Multiple Abscesses of the Liver.

Dr. Joseph Redmond submitted a case of multiple small abscesses of the liver.

Mrs. E., a married woman, was admitted into the Mater Misericordiæ Hospital on the 27th of February, 1890. The patient was anæmic, wasted, and somewhat jaundiced in appearance. She complained of severe pain over the liver, and stated that she suffered from gall-stones. Her stomach was irritable, no food having been retained for some days, the vomited matters yellow and bitter to the taste. The bowels were constipated, and the last motions observed were somewhat light in colour. Her tongue was furred; temp., 98°; pulse, 100; respirations, 24. The liver was enlarged and tender on percussion. The spleen was also enlarged, and could be felt below the ribs. Some days after admission she suffered from rigors; temp., 103°; pulse, 148; resps., 36; signs of pleuritis being detected over left bases. The patient died on the 12th March.

The *post mortem* was made by Dr. M'Weeney. Right and left pleural cavities showed evidence of acute inflammation. The liver was enlarged; numerous small abscesses were detected, more especially in the left lobe. The gall-bladder was full of small angular calculi. Cystic duct thickened but patent. The common bile duct was blocked by a calculus lying immediately behind the duodenal mucous membrane.

Dr. M'Weeney said that he suggested the somewhat wild hypothesis that the gall-stones might have caused ulceration of the common bile-duct, and that micro-organisms might have made their way up, in spite of the supposed antiseptic action of the bile, and spread into the ordinary liver substance; but his belief was that the case was one of pyæmia.

The President said he regarded the abscesses in question as pyæmic.

Dr. Redmond, in reply, said he had no remark to make save that the gall-bladder contained no pus.

Round-celled Sarcoma of the Testis.

Dr. M'Weeney showed a tumour of the testis removed at the Mater Misericordiæ Hospital in January last by Mr. Chance. The patient, aged about thirty, had first noticed the swelling about two years previously, and it had since increased gradually and painlessly, with absence of testicular sensation. No tubercular or syphilitic history of patient or family; no history of injury.

The testis was enlarged to the size of a medium-sized orange; its shape was globular; its consistency hard. On section the substance was white, mottled with yellowish patches, which looked to the naked eye like caseated portions, and which on microscopic examination were fatty-degenerated and almost devoid of structure. There was no trace of tubercular new growth. The white tissue consisted of *cells* and a *stroma.* The *cells* were largish, oval, uni-nucleated, and offered little or no variation in size or shape. They did not lie in actual contact, but each was separated from its neighbour by a small quantity of homogeneous intercellular substance. Their characteristics were, on the whole, those of the connective tissue rather than of the epithelial type.

The stroma was trabecular in character, the main trabeculæ being comparatively thick, and running a straight course through a considerable part of the sections. From them were given off more delicate bands, which in their turn gave origin to still more delicate ones—the same structure prevailing throughout—viz., round and spindle-shaped nuclei of various sizes, with little or no approach to the formation of fibrous tissue. The ultimate trabeculæ consisted of but one or two rows of spindle cells placed side by side and end to end. They were clearly distinguishable from the oval cellular elements above mentioned, which lay in groups of varying size—about a dozen together as a rule—in the ultimate meshes of the stroma. He was in some doubt as to whether the stroma did not represent that which, in the normal testis, starting from the mediastinum, runs between the lobules—in which case it would seem to have increased, *pari passu*, with the tumour, or whether it was of entirely new formation, in which case the specimen would have to be looked upon as one of alveolar sarcoma—a neoplasm of some rarity in that situation.

Dr. Patteson said that, judging from the general distribution of the stroma and the character of the cells, this disease was much more distinctly a carcinoma than a sarcoma.

Mr. Story moved that the specimen be sent to the Committee of Reference.

Mr. Lentaigne seconded the motion.

The motion was accordingly passed, and the Section adjourned.

Friday, May 30, 1890.

The PRESIDENT in the Chair.

Case of Favus.

DR. WALTER SMITH exhibited a boy, aged seventeen, suffering from favus on the non-hairy parts of the body—namely, one patch on the cheek, another on the right shoulder, and a third on the back under the right shoulder-blade.

Porencephaly.

MR. CONOLLY NORMAN read a paper on Porencephaly. He briefly traced the history of this affection in medical literature from the days of Heschl, who first described under this name, to Andry, who has recently written a valuable memoir. Mr. Norman described a case which had occurred in his own practice. The patient was not an idiot. History was very defective, but he was known to have been a criminal. When under Mr. Norman's care he suffered from paranoia, with persecutory delusions. He exhibited partial right hemiplegia without aphasia. He died of phthisis. The brain showed a large opening on the left side leading directly into the lateral ventricle—the insulæ, the operculum, and the internal capsule being absent. The optic thalamus and optic tract on the left side were diminutive. Having described the conditions found in some detail, and exhibited some beautiful photographs of the brain made by Professor Fraser, Mr. Conolly Norman dwelt upon the various theories of the causation of porencephaly. He inclined to believe that a case like this was probably a condition of arrested development, and regarded the membrane which closes the opening in these cases as the altered wall of the secondary anterior cerebral vesicle which has not developed nervous matter. The most interesting points were—(1) the ætiology, (2) how the functions of the internal capsule were even imperfectly performed in the absence of that structure.

DR. C. J. NIXON remarked that Mr. Conolly Norman had discussed porencephaly as if it invariably had a congenital origin; but it was equally true that porencephaly was acquired—for instance, from injuries several months after birth, or from acute, exhausting diarrhœa, or from a bad form of measles or scarlatina, resulting in infantile hemiplegia or in total paralysis.

DR. T. MYLES said the photograph shown by Mr. Norman seemed to be one of the brain of an ourang outang or of a South African bushman rather than of an ordinary human brain; for the Sylvian fissure, instead of being horizontal, was nearly vertical; the fissure of Rolando was invisible; the parieto-occipital fissure extended to the temporo-sphenoidal bone, and the tip of that bone, instead of reaching out to the frontal lobe, was undeveloped, extending only as far as the Sylvian fissure.

Mr. Conolly Norman, in reply, said the conditions described by Dr. Myles were attributable to the fact that the brain had been allowed to lie a little crooked and was badly hardened; but the fissure of Rolando was specially marked and recognisable while the temporo-sphenoidal lobe had got squeezed up. There was no trace of destruction of tissue or of any lesion from thrombosis or other cause. The chief problem was from what took place to the fibres of the internal capsule, how any movement remained in the limbs which were entirely cut off from what were regarded as the motor centres of the cerebral cortex.

Dr. C. J. Nixon—Was there volitional movement in the limbs, notwithstanding the destruction or absence of the internal capsule?

Mr. Conolly Norman—Yes. There was volitional movement limited in extent and impaired, but undoubtedly existent.

Pneumothorax.

Dr. C. J. Nixon exhibited the right lung of a girl, aged eighteen, who had been admitted into the Mater Misericordiæ Hospital, under Dr. Chance, suffering from strumous disease of the right knee-joint. She succumbed four weeks after the occurrence of the pneumothorax. At the *post mortem* it was found that the left lung was in a state of congestion. The right side of the thorax was partially filled with a serous fluid containing pus, while the right lung was completely collapsed. The visceral pleura was of a dead white colour, considerably thickened. Corresponding to about the lower edge of the middle lobe of the lung was found an aperture through which could be passed a penhandle leading into a portion of lung tissue which was filled with yellow pus. There was evidence of caseation. Dr. M'Weeney found on examining softened portions of lung two distinct forms of baccilli, aggregations of tubercle bacilli, and the ordinary micrococci of pus. The starting point was the strumous disease in the knee-joint, thence a secondary infection with tubercle bacilli in the lungs; and this set up a broncho-pneumonia; then the products of the broncho-pneumonia of tubercular origin underwent caseation; and then ensued this condition of *mixed infection;* and, finally, the visceral pleura gave way which was the condition of pneumothorax set up.

Dr. M'Weeney said there were four sections shown, two displaying the cocci, stained by the Weigert-Gram method, and two the tubercle bacilli, stained by the Weigert-Ehrlich method.

Dr. Patteson said he had never found tubercle bacilli so small as seen in the specimen, and was not satisfied that the organisms were tubercle bacilli. He moved, and Dr. Bewley seconded, that the specimen be referred to the Committee of Reference.

Ovarian Cystoma.

Dr. M'Weeney exhibited a specimen of ovarian cystoma of the papillary variety. The wavy outline of the papillary prominences was covered with the usual columnar epithelium, lying on a basement membrane and supported by a delicate fibrous tissue, greatly cut up by crypt-like invaginations of the epithelium. Peculiar granules lay below the basement membrane. They were about the size of an ordinary epithelial nucleus or smaller, and took carmine, hæmatoxylin, and the anilines equally well; they were apparently not nuclei, for many lay outside cells—though sometimes several lay inside a cell. On careful examination with a high power each seemed compounded of two or three smaller granules. They were not accumulations of inflammatory nuclei or emigrated leucocytes. Neither were they Ehrlich's Plasma-zellen.

Fracture of Head of Radius.

Dr. Walter G. Smith having taken the chair,

The President exhibited the first example he had seen of fracture of the head of the radius. As a rule, the injury was associated with fracture of the coronoid process of the ulna, or fracture of the olecranon process. or where fracture of the lower end of the humerus was extended into the radius by direct violence. At the Pathological Society of London, about 1884, a case of the kind was exhibited where the fracture occurred without any other grave lesion of bone in the neighbourhood; and he had also read a recorded case where the fracture of the head of the radius was isolated from other injuries. His own case furnished the third example of fracture of the head of the radius without lesion either of the shaft, or of the adjoining processes of the ulna, or the humerus. The only pathological change connected with the lesion was that of slight arthritis of the lower end of the humerus, indicating something abnormal in the corresponding bone; but all trace of uniting callus was absent.

Specimens from Case of Leprosy.

Dr. O'Carroll read final notes on his case of leprosy. The patient had, during the past four months, presented a systolic murmur in the tricuspid area, and suffered much from pseudo-anginal attacks. He died on the 9th of May, twenty-three years after the appearance of the earliest eruption. At the necropsy the main things noticed, in addition to those detailed in a former paper, were—the presence of disseminated infiltrations in the apices of the lungs, a few tubercles in the spleen, ulceration of the tip of the epiglottis and thickening of the mucous membrane of the larynx, and lastly, some changes in nerves. These last were two-fold—namely, hæmorrhage and thickening. In one ulnar nerve, just above the elbow-joint, was an oval bluish-black effusion, which pushed the nerve strands to the side, and measured about one inch by half an inch. The right ulnar nerve and both the large branches of the only sciatic nerve examined were thicker in the neighbourhood of the elbow and knee-joint respectively than higher up. The nerves were not, in any of the places examined, directly involved in the cutaneous eruption. The heart showed fatty degeneration, with dilatation of the right ventricle and the tricuspid opening.

The Section adjourned.

NON-TUBERCULAR AND NON-CARDIAC HÆMOPTYSES OF ELDERLY PERSONS.

IN a characteristic and instructive paper, read before the Medical Society of London, Sir Andrew Clark, Bart., President of the Royal College of Physicians of London, says that many years ago, when examining the evidences of the arrestment of phthisis and endeavouring to determine the conditions in which it occurred, he was struck with the large number of cases of hæmoptyses occurring in elderly persons who were at the time, and remained afterwards, free from signs either of pulmonary tuberculosis or of structural disease of the heart. Sir Andrew concludes his paper with a statement of the propositions which he has framed out of the results of his own inquiries on the subject. These propositions are as follows :—1. That there occurs in elderly persons free from ordinary diseases of the heart and lungs a form of hæmoptysis arising out of minute structural alterations in the terminal blood-vessels of the lung. 2. That these vascular alterations occur in persons of the arthritic diathesis, resemble the vascular alterations found in osteo-arthritic articulations, and are themselves of an arthritic nature. 3. That although sometimes leading to a fatal issue, this variety of hæmoptysis usually subsides without the supervention of any coarse anatomical lesion of the heart or of the lungs. 4. That when present this variety of hæmorrhage is aggravated or maintained by the frequent administration of large doses of strong astringents, by the application of icebags to the chest, and by an unrestricted indulgence in liquids to allay the thirst which the astringents create. 5. That the treatment which appears at present to be the most successful in this variety of hæmoptysis consists in diet and quiet, in the restricted use of liquids, and the stilling of cough; in calomel and salines; in the use of alkalies with iodide of potassium; and in frequently renewed counter-irritation.

HÆMORRHAGE FROM THE UMBILICUS.

DR. H. F. WILLIS reports (*Phil. Med. and Surg. Rep.*, No 1,727) a case of death of a three days' old child from bleeding round the edges of the umbilicus. "The cord was soft, gangrenous, and nearly off."

IS IT TRUE?[a]

By PHILIP CRAMPTON SMYLY, M.D., Univ. Dubl.; Ex-President, Fellow, and Member of Council of the Royal College of Surgeons in Ireland; M.R.C.P.I.; Surgeon to the Meath Hospital.

GENTLEMEN OF THE MEATH HOSPITAL,

It is my pleasing duty to-day to welcome you all to the opening of the Hundred and Fortieth Session of the "Old Meath," as we all affectionately call this institution. It is not by the law of selection—natural or otherwise—that it devolves on me to address you to-day; it is simply my turn to do so.

We all have our duties here. Our excellent governing body have done their duty well, and if they have failed in making this hospital perfect, they have done their best with the funds entrusted to them; and I may say, without fear of contradiction, that the money expended on administration is smaller in proportion to the amount spent on the patients than in almost any other similar institution.

The Standing Committee have done their duty, and deserve our thanks. The condition of the patients has been improved very much, not only by new wards and a better system of cleaning, but also by improved nursing—due to the Red Cross and its earnest and efficient head, assisted by all her sisters, including not only her own but all the members of the order and the probationers.

To the pupils of the hospital I would wish to say a few words. I do not intend to-day to give you a lecture; it has been a notion of mine that the day for lectures is past; though when I listen to our senior physician and some others I feel that my notion is a wrong one.

The notes I have put together are simply a few words from a senior student to my fellow-students who are junior to me.

This hospital has always been a teaching institution. It was founded for the good of the poor, not only for those who are admitted within these walls, but for the poor of the whole country, for the good of mankind in general, I may say, with only moderate exaggeration; for do we not find successful "Meath men" in most parts of the world ready and willing to help *the poor*.

M. Taine, in his book on England, says—"When an English gentleman's son returns from school his father's first anxious inquiries are after his son's position in the cricket field or football club. His position in his class comes after, or not at all."

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[a] An Address introductory to the Session of 1890-91, delivered in the Theatre of the Meath Hospital and County Dublin Infirmary on Monday, October 6, 1890.

Following the same order, I have to congratulate you on your success this past session at football, as our visitors may see by the beautiful cup you exhibit in the hall of the hospital. I wish you most heartily an equal or greater success this year. You have, however, a more serious game to play—the game of life. Similar laws and training, similar earnestness and self-control, ensure similar results. The bodily training must be perfect; too much at once or too little is equally futile. It is the same with the mind. You would not have your cup this year had you trained your bodies as some of you try to train your minds for your examinations. Too many students look on their examinations as an end to be attained, and hope when they have passed them that a knowledge of their profession will come to them, as the sea-water comes to the oyster, without any exertion on their part.

Your examinations—your real examinations—begin only when you begin your profession. Your examiners then will not be content with a pass mark; they have a personal interest in what you know; it is a matter of life and death to those examiners. If you fail you will find it very difficult indeed to get a supplementary examination. Your want of training may mean death to your patient, ruin to yourself.

Give something of the same training to your hands and minds as you do to your feet and bodies. You will then be successful, and win, not only the hospital challenge cup, but you will be successful men—men of the hand—surgeons. As the Germans say, all good things are three—you have now to get three qualifications.

The last few years have been years of change. Great advances have been made in every department of science and art; in none more so than in our profession, which is both a science and an art. This period has also been characterised by wholesale destruction. Some distinguished men being complete "agnostics"—men who say that there is nothing but physiology, and that so-called remedies are nothing. On the other side, some even dare to say that a knowledge of physiology makes an unpractical medical man.

I will read to you an extract from an address on therapeutics by Dr. Broadbent, substituting the words "medicine or surgery" for the word "therapeutics":—

"I need scarcely say that therapeutics must always belong to the order of applied sciences, and will bear much the same relation to physiology in an extended sense as engineering to mathematics; just as engineering is applied mathematics, therapeutics will be applied physiology—as in engineering, there will always be room for the exercise of individual skill. The strength of materials is known equally to one engineer as to another. The mathematical principles on which this knowledge can be applied to the greatest advantage are common property; but one man builds a bridge which disappears under the first severe trial, while the work of another outlasts the centuries."[a]

Do not be dismayed at destructive criticism. It is the necessary outcome of the question—"Is it true?" There is an old saying—"Everything true is not new; everything new is not true." This very well describes the attitude of many minds; but, like most clever sayings, *it is not true.*

This question is a most necessary one in every direction in our daily life; but how few really ask the question? How few either wait or care for the answer? The Duke of Argyll says—"Nature, when questioned, will answer the questions, when? where? and how? but never—why?" The latter is almost the only one that is generally asked.

Do not despise any facts. One well and carefully observed fact, though it may seem useless at the time, will one day fall into its place; and, as in the child's picture on wooden blocks, the wanted block will suddenly complete the picture. So one fact may complete a group that without it could not be understood.

It is curious how facts find each other, even after centuries, and sweep away conjectures. Of this there is a very curious example in the MS. of the "Codex Atlanticus" of Leonardo da Vinci in the Ambrose Library at Milan. It is all written in left-handed writing. It has always been believed that Leonardo adopted this style of writing to preserve his work from the eyes of superficial readers. In the National Library of Naples is a diary of the priest Antoine de Beatis, who, in 1517, travelled in the train of the Cardinal of Arragon. The Cardinal visits the great painter; the priest notes the fact "that nothing more of value in painting could be expected of him, *as he had paralysis of the right hand.*" Modern investigation has shown that mirror writing with the left hand is the exact counterpart of ordinary writing with the right hand. The two facts come together after so many years, and away goes the conjecture as to Leonardo's churlishness.

Collect facts—the smallest grain of truth is useful, but do not be too hasty in combining them. Do not be too hasty to clothe them with fancies.

> Le vérité plait moin quand elle est tout nue ;
> Et c'est la seule vierge en ce vaste univers,
> Q'on aime à voir un peu vêtue.—BOUFFLERS.

When some of the facts of a group are collected and grouped, so as to look very well, one new bit of truth may upset the whole, and involve a new arrangement. The question is—*Is it true?* I do not say "is it the truth;" because whatever a man believes himself is *the truth*, all else is the belief of another (*sit venia verbo*)—Heterodoxy.

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[a] W. H. Broadbent, M.D. B. M. J, August 9, 1890.

In the search after what is true there must be much destruction as well as construction. Life itself is the balance between construction and destruction. De Blamville's definition of life is "the double interior motion, general and continuous, of composition and decomposition." So it is with the mind—old notions are destroyed; new ones take their place.

Many are afraid of this process of destruction, and denounce the iconoclasts in medicine and surgery, forgetting that the destroyers have their functions as well as the creators. Sir Thomas Browne says—"For knowledge is made by oblivion, and to purchase a clear and warrantable body of truth we must forget and part with much we know."

Giosue Carducci says:—

Now we destroy—of the ages
The highway is built upon thinking,
Oh, few and strong—to the work,
For truth is in the depths.

Or destruggiam—Dei secoli;
Lo strato è sul pensiero;
O, pochi e forti, all' opera,
Che nei profundi è il vero.

"The goal of truth lies behind a cloud of doubt, speculation, and prejudice. Every now and then a stride forward is made on firm ground, some great generalisation is arrived at, and the hands of knowledge are strengthened for further efforts."—(*B. M. J.*)

"Our duty," said Spinosa, "is neither to ridicule the affairs of men nor to deplore, but simply to understand them."

The whole subject of antiseptic and aseptic surgery affords a very interesting example of the various answers to the question—*Is it true?* One very successful surgeon tells you that the whole of Listerism is simply cleanliness. If surgeons would only wash their hands—that is all that is needful. An assistant will wash his hands if you tell him there is something mysterious in the water, who would resent being asked to use only soap as an insult to his morning ablutions. Another will tell you that these micro-organisms that are so much talked about flourish in these so-called antiseptics, and if the solutions are sufficiently strong they destroy the structures as well as the micro-organisms. Another, again, tells you that these organisms do no harm; that you may use water full of living germs and yet have just the same or better results than the followers of the cult of Lister. Some of the facts, however, seem to be against these gentlemen.

There is one great law of nature to which no exception has yet been found—*the production of every living thing after his kind.* If you vaccinate with lymph from a vaccine pustule you will always get a vaccine pustule, and nothing but a vaccine pustule, unless you introduce some other condition along with it, or the organism in which you plant it is in a condition to resist its introduction. The same with anthrax and erysipelas, and many other diseases, as proved, beyond denial, by Koch, Pasteur, and others.

Years ago we used to have epidemics of erysipelas in this hospital. We found that by burning sulphur through the wards these so-called epidemics could be stopped. Now we do not receive into the wards cases of erysipelas. We used to destroy the infection; now we exclude it.

In like manner, we may understand the difference of opinion as to antiseptics. One set say—We will exclude all entrance for these micro-organisms. Another set say—Make quite sure; kill them all. While a third set say—These micro-organisms do no harm; give them nothing to feed on. Very good results follow when no care is taken to exclude or destroy, forgetting that the air, water, and hands may be free from the special micro-organisms which cause disastrous results. Instances of this you may see in the brilliant cases of healing after operations by my colleague, Professor Macnamara, who leaves the wound open for hours to glaze before he applies any dressing. Another very successful surgeon, not on the side of Lister, who has given us his views in a most clever speech "On the Present Aspect of Antiseptic Surgery" (reported in the *B. M. J.*, September 17), Mr. Lawson Tait, gives the difference between him and Lister so very well that I will read it to you:—

"I come now to more practical questions in Sir Joseph's Address, and I take, first, the sentence which opens up his discussion on abdominal surgery:—'The success in abdominal surgery achieved by Bantock and Lawson Tait, without, it is said, the use of antiseptic means, proves a stumbling block to some minds.' The introduction of the phrase 'it is said,' is really too much. Either Sir Joseph has been living in the clouds of his spray for the last twelve years, ignorant of what has been passing round him, or he deliberately mistrusts what Bantock and I have been telling the world in our everyday practic—and a perfectly credible portion of the world has been to see and test the facts. 'But in truth,' he continues, 'the practice of these surgeons is by no means conducted without antiseptic precautions, nor would they, I am persuaded, desire that such an impression should prevail.' I, for one, distinctly wish it to be understood that I adopt none of Lister's so-called antiseptic precautions, because I have no fear of germs, and never had. I have been trying to get Lister to believe for years past that all along he has been putting the cart before the horse, but he has never read my views. He tells us that we are antisepticians because we are very particular to clean our sponges. But the Listerian doctrine used to be that a dip in a 5 per cent. of carbolic acid would make any sponge safe. I always knew that it would not make them safe; for sponges are dead animal matter, most prone to rapid decomposition of the foulest kind imaginable. A damp sponge kept at a temperature of 100° will be a mass of stinking putridity beyond all imagination in twelve hours."

The question is one, you see, of decomposition; and the truth appears to me to lie in the answer to the question—What is decomposition? Take Mr. Lawson Tait's yeast plant for example:—

"I go back to my yeast plant for my analogy, and I say that that specific germ splits alcohol out of sugar, and leaves thus a constant, specific, and permanent result. The poisonous effects of taking a mixture of yeast plant and alcohol is due to the alcohol, and not to the yeast plant. Such bacilli as cause decomposition (and such as have specific properties) split out from the dead organic matter some horrid things, just as alcohol is split out—the smells of all decomposing matter prove this; and such fluids retain their smells even when filtered under pressure through wood, impervious to even the minutest bacilli. This filtered fluid under suitable circumstances is fatal to animal life, and causes local sloughing when hypodermically applied to man. There is clearly, therefore, some result of the action of ordinary decomposition which is produced like alcohol, and, like it, poisonous in small doses—not deadly, but in large doses very deadly. Here is a possible explanation of one of the great clinical facts of disease, and personal idiosyncrasies of disease, as known to everybody, would immediately supply another. The yeast plant by itself is quite harmless, and in a solution of dextrine or sugar at a low temperature it will not produce alcohol. The ordinary bacilli of decomposition will not attack—at least will not produce these ordinary phenomena in living tissue, but they do so in dead tissue. Enclose some dead tissue with the necessary germs in living tissue and you get a disturbance very fairly proportional to the dose given. If the dose is small, or the tissue not very favourable for decomposition, the constitutional disturbance is slight."

Surely nothing can be plainer to ordinary minds than that we have two truths, and not one only. The yeast plant cannot split alcohol out of sugar and water if there is no sugar; nor can the sugar change its condition without the yeast plant. Sugar and water decomposes exactly like any other vegetable solution if the germs of decomposition only are admitted to it. Mr. Lawson Tait goes on to say:—

"To continue—Lister says: 'Both those surgeons also wash out the peritoneum with water, so as to get rid of coagula without injuring the peritoneal surface by rubbing it with sponges, and this is done in order to avoid the risk of leaving in residual clots.' If Sir Joseph Lister would witness the facts of the case, as they are in my practice daily, he will see that I care not a straw for injuring the peritoneum; that in the great bulk of my operations it is already so damaged that further injury is, and must be, a matter of utter indifference; and the only fact in his whole statement concerning me which is correct is that I wash away clots (pus, serum, and a great deal more) to avoid the risk of sepsis in the residuum. That is precisely what I have been teaching for the last twelve years. Lister's view was, 'Keep out the germ, and you may leave blood-clot (and other matters) to take care of themselves.' My view was, and is, 'Get out all decomposable matter, and you can let the germs in freely.' Lister has now come round to my view; so where is Listerism now? As I said a few months ago at the debate at the Medical Society of London, it is as dead as Julius Cæsar, after a short life of twenty-four years."

This last sentence is hardly fair. I have read, carefully, most of what Lister has written, and a great deal of what his followers have written, but have no recollection of any of them saying, "You may leave blood-clots (and other matters) to take care of themselves."

"SCEPTICISM AND ASEPTICISM.

"SIR,—Does not the difference in opinion and the equality of success in practice of Mr. Tait and the Listerians admit of easy explanation? Is it not this? Septic infection is the result of traumatic putrefaction. For traumatic putrefaction two elements are necessary:—1st. Putrescible material; and 2nd, a ferment, or infective germ. If either be absent no putrefaction can occur, and no infection result.

"Mr. Tait removes the putrescible material coagula and shreds of dead tissue by flushing and drainage—the ferment having then no pabulum may be freely admitted with impunity.

"Sir Joseph Lister excludes the ferment by filtration of the air and by germicides, and thus practically sterilises the putrescible material, if any be left in the wound."—(JOHN ERIC ERICHSEN.)

The well-known story of the officer of Napoleon I. who had his leg taken off in Russia on the battle-field, and was then sent to Paris—a journey of many days—with his stump packed in cotton-wool. When the dressings were removed on his arrival they were found dry, and the wound healed. No one knew the *How* then; but we do now. For is it not with cotton-wool Pasteur excludes the micro-organisms from the sterilised broths.

Mr. Lawson Tait makes a strong point of the fact that the products of decomposition are poisonous, though all the bacilli may be strained out. But can ptomaïns and albuminoses be produced without special micro-organisms? These products will poison in proportion to the dose given, exactly as alcohol will, and do not reproduce decomposition any more without the micro-organisms than alcohol without the yeast plant.

To show you the importance of antiseptics for the protection of the patients from the surgeon's hands as a source of micro-organisms, Sir William Stokes has given me an account of some experiments conducted in the Berlin Surgical Clinique during the recent International Congress, showing the great importance of the surgeon having his hands surgically clean. A series of glasses were exhibited containing specimens of bacilli. Those in which the development was observed to be most copious—labelled "bacillus cæruleus"—were observed in water used by the surgeon, the usual precautions to render his hands aseptic not having been previously adopted. They were found also in water in which the surgeon who had only partially used antiseptic precautions had washed his hands. That only in which all the precautions had been previously used was found to be free of these micro-organisms.

The introduction of carbolic acid was a great step in advance in surgical work (though Mr. Lawson Tait calls it "that debased and abominable member of the alcohol series misnamed carbolic acid"). Now, alcohol in some form or other has always been a favourite dressing for wounds. The good Samaritan used oil and wine, and the late Dr. O'Reilly had most brilliant results by sponging with strong spirits and water.

If you exclude micro-organisms, or destroy them, you have Listerism and healing by first intention. If you admit them to a suitable feeding ground, you have inflammation. If you exclude micro-organisms, and leave no feeding ground, you have Lawson Taitism. Mr. Lawson Tait was asked by a visitor to his hospital—"How do you manage cancer cases in your hospital—they are a great source of micro-organisms?" "I manage these cases in two ways—1st, I do not admit them, and 2nd, if they by chance get in, I turn them out."

The idea that inflammation is a process of healing has been almost universally rejected and cast into the lumber room of old ideas. Dr. Karl Roser,[a] in a very clever paper on Inflammation and Healing, says—

"I hold it for a simplification of medical science if only the appearances produced by infection are designated as inflammatory, feverish, diseased. My work has for its object to point out that we must again return to the dictum of John Hunter—'Healing by first intention runs its course without inflammation.'"

We must again, with Hunter, distinguish "between inflammation and healing"—

"Virchow's theory of inflammation is now to be understood if one confines the idea of inflammation to the process of infection that carries with it the character of danger, and if by irritation one always thinks of micro-organisms. Micro-organisms have taken the place of the transcendental irritations. How is it possible to understand by inflammation at one time an infectious disease, at another a process of healing? How is it possible to place together the process of the organisation of a thrombus as an inflammatory new formation, and the destructive sloughing and constitutional symptoms that go along with anthrax?"

[a] Entzündung und Heilung. Eine historisch kritische Studie. Von Karl Roser. 1886.

The infective inflammation bears "the character of danger, and by mere increase in quantity leads to death. The process of healing which has hitherto been classed with inflammation is never progressive—is never aggressive."[a]

Kœnig gives three forms of healing—

1. The aseptic;
2. The inflammatory;
3. The healing with suppuration.

These exactly correspond with Hunter's—

"Hunter entirely rejected the action of the air as an excitant of inflammation. For the first time, a hundred years after, Zahn proved Hunter was right, though the contrary opinion flourished in the meantime. He showed that filtered air excited no inflammation."

Sir James Paget[b] says—"It would be an instructive piece of the history of surgery to show exactly how this truth (Hunter's) being mixed with error came, therefore, to be thrown away, and to make room for an error which had less of truth mixed with it."

"As Hunter originated subcutaneous surgery, taught healing by first intention, and particularly healing by crusting, he is to be held as the forerunner of Lister. The Lister of the year 1867 is hardly to be imagined without the Hunter of 1767."[c]

We hope during the session to give you ample opportunity to judge for yourselves. But do not be content to see the operations only. Watch the subsequent dressings, note the temperatures and the treatment, and when posible follow up your cases. You will then get answers, and often most unexpected answers, to the question—"Is it true?".

A few words on anæsthetics. You will hear from time to time very strong opinions expressed which cannot all be true.

Practically there are three in daily use—

1. Ether;
2. Chloroform;
3. Nitrous oxide.

All three have their dangers, and their list of killed and wounded.

Nitrous oxide has the shortest list of deaths, chloroform the largest; yet the mortality from chloroform is about half that of railway travelling.

The late John Morgan, who was the great reviver of the use of ether in Dublin, used to say any surgeon who had a death from chloroform should be prosecuted for manslaughter; and yet chloroform is extensively used, and properly used, for it has many advantages over ether in certain cases.

Dr. James Dunlop says that in the Glasgow Infirmary in a general way ether was administered in the proportion of one case of ether to thirty cases of chloroform.

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[a] K. Roser, p. 13.

[b] Lectures, p. 148. 1876.

[c] K. Roser, p. 19.

He also says chloroform is much more dangerous than ether during operations; but after operations ether is much more dangerous to life than chloroform.

It is much more difficult to administer ether accurately than to administer chloroform accurately.[a]

I do not intend to discuss this question here, but will only ask you to ask the question—*Is it true?*

We have sudden deaths without any anæsthetic, and it is a fact worth noting that deaths under the administration of chloroform take place in most cases when very little of the anæsthetic has been given. A surgeon or dentist says:—"I will give you a whiff of chloroform, and you will feel nothing." These are the cases that run up the chloroform death-rate. You never read of a death from chloroform after a prolonged anæsthesia, unless an overdese is given suddenly. Sir James Simpson brought a patient from the South of England to Edinburgh, without danger and without pain, under chloroform the whole time.

Gentlemen, many of the deaths under chloroform are not from chloroform. When we know more of life we may learn more about death.

We do know more about the functional endowments of the highest nervous centres than we did, and the observations of Dr. Van der Kolk with regard to epilepsy—being a discharge of a force similar in some degree to the discharge of electricity from a Leyden jar—may lead us to the whole truth in time. Dr. Hughlings Jackson uses this expression with regard to the phenomena of disease. Thus, by careful study of facts, we shall be able to explain some of the phenomena which we see so often and understand so little. Why should a man in perfect health—in the very act of making a great speech, or may be travelling, or in his bed—suddenly cease to live. He may have been carefully examined by a medical man the day before, and pronounced sound "in heart and head." Yet he dies; and some other medical man will come in, look at the dead body, and, with solemn face, say, "Disease of the heart," "Failure of the heart's action;" and this is received in good faith, and entered on the certficate, and is satisfactory to everyone. Whereas, if he said, "I don't know," he would be pitied; if he said, "Shortness of breath," he would be laughed at. And yet, all exact observation shows the heart is the last to die. So long ago as Dr. Granville's book on "Sudden Death," 1854, he says:—"But I have shown that in all cases in which it has been possible to investigate the immediate manner of the termination of life we have found the action of the heart persisting and the brain receiving still its blood, whilst the lungs had ceased their functions with a last prolonged expiration, following after many seconds the last deep inspiration when death ensues"—exactly corresponding with the results of the Chloroform Commission of last year; confirming the truth of a saying of the late Maurice H. Collis:—"Never mind the pulse; watch the breathing. If you depend on the pulse your patient may be dead long before the pulse will tell you." This is further confirmed by Dr. Dunlop, who says:—"The deaths which are distinctly charged against chloroform are, according to the *post-mortem* appearances, divisible into two distinct classes. In one, and larger class, the appearances are those of death by asphyxia—death through the lungs; in the other, and fortunately smaller class, the appearances are those of death by syncope—death through failure of the heart. The proportion is one death from syncope to about twelve from asphyxia." He further states:—"I think the deaths from asphyxia ought to be to a large extent preventable. The deaths from syncope are in most instances beyond the control of the highest skill and the greatest care." Therefore, Maurice Collis is still right—Watch the breathing.

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[a] Brit. Med. Jour. P. 659. Sept. 27, 1890.

Surely this is a subject for very careful investigation. Yet there are writers who condemn the researches of the Hyderabad Commission, and the so-called sacrifice of animal life; writers who have no word of condemnation for "the state of things"[*] which has in so many ways hindered and obstructed physiological research in this country.

Surely, the more we know the better we are armed to meet dangers.

When you hear ether praised and chloroform condemned ask yourselves the question—Is it true?

In the domain of therapeutics we have much need of asking—*Is it true?*

What is true? We are overwhelmed with lists of new medicines and with lists of diseases and so-called scientific pamphlets—many good and many more worthless. Life is too short even to learn their long names.

Our belief in the use of medicines has been from time to time shaken to its very foundation; at times we even have doubted the existence of any foundation.

A passage from Dr. Broadbent's excellent address, reported in the *British Medical Journal* for August 9th, gives a good idea of the history of our faith in therapeutics:—

"It is unnecessary to trace once more in detail the steps of our progress in regard to knowledge of morbid processes from the time when disease was looked upon simply as an assemblage of symptoms.

"First came macroscopic morbid anatomy, which reacted discouragingly on therapeutics. What could any treatment do in the case of lungs excavated by phthisis, or kidneys shrunk to a fourth of their volume, or a brain ploughed up by hæmorrhage? Scarcely less discouraging was microscopic morbid anatomy, revealing damage to structure which was unsuspected on naked-eye examination, and cell changes underlying and leading up to tissue changes became the object of study.

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[*] Port Tarascon. Alphonse Daudet.

"It was inevitable that a sceptical attitude of mind should be generated by contemplation of the results of disease. But on the tracks of this registration of results came investigation of processes normal and morbid, experiment coming to the aid of observation, and, as processes were understood and their initiation traced, it became evident that they could be controlled.

"To say nothing of inflammation, which in my student days was considered to be simply an affair of blood-vessels, and of which the characteristic mark is now believed to be outwandering of leucocytes, while its initiation is coming into view as a dynamic influence. The crowning result, so far, of this persevering inquiry into processes is the discovery of the part which our enemies the microbes play in the production of disease. The influence of some organisms had been inferred in the specific fevers which, with other febrile affections, had been called zymotic, from the analogy of yeast, but Lister's demonstration of the disastrous effects of specific germs on open wounds was a revelation which revolutionised surgical treatment of wounds, and rendered possible operations till then undreamt of, and not only has the identification of one pathogenic micro-organism after another placed the zymotic origin of a certain class of diseases on a sure basis, but the study of the conditions governing their multiplication, and of the circumstances favouring or retarding their conquest of the human organism, has placed knowledge in our hands which is of enormous importance in the prevention of these diseases, and has in some, as, for example, malignant pustule, shown us how they may be treated successfully in an early stage. Already also this knowledge is giving greater precision to our treatment of fevers, and may ultimately enable us to deal with them more effectually.

"Koch's discovery of the tubercle bacillus, again, besides extending our ideas as to the range of action of microbes, has brought order into our conceptions of the phthisical process.

"But there are facts which are out of reach of explanation by structural lesions and cell changes, and just as physiological chemistry is necessary in order that the functions of organs may be understood, so pathological chemistry is necessary in order that we may follow the effects of morbid processes.

"Diabetes, Bright's disease, and gout, are very old illustrations of the importance of pathological chemistry, but an altogether new field is opening out in the study of the ptomaines and albumoses which appear to be intermediary agents in the injurious effects of bacteria."

Dr. Broadbent protests against the rage for new medicines which seems to have taken possession of the profession. This is absolutely fatal to accuracy of observation and precision in treatment. He ends with this very scathing sentence:—

"Am I not right in my conjecture that they are most ready to fly to new medicaments who have least knowledge how to use the old and tried ones? May I take the dangerous liberty of indicating the points of my diagnosis of a weak medical man? They are—indiscriminate administration of stimulants in fever, a ready resort to narcotics and sedatives, treatment directed to symptoms only, and a fondness for new drugs with high-sounding names."

Dr. Broadbent's definition of therapeutics is so good I will repeat it to you:—

"By therapeutics we mean all those measures by which we combat and endeavour to subdue disease, and if we ask what would fulfil the conditions of therapeutics as a science, the answer would be a complete knowledge of the processes of disease on the one hand, and of the mode of action of remedies on the other.

"We must have, then, some definite idea in our minds of what we mean by disease. Numerous and varied definitions have been given, but I shall not attempt to enumerate, still less to discuss, them. The idea which has guided me is one which I arrived at when I first began to lecture on medicine twenty years ago. It is an application of Herbert Spencer's definition of life. This great philosopher, after a long discussion, enunciates the following as conveying the broadest and most simple definition of life: 'The adjustment of internal relations to external relations.' Life is defined as a process, you will observe, not as an essence or as a force. Put briefly, life is the continuous adjustment of an organism to its surroundings. A living organism is subjected to influences which, were it not living, would tend to its disintegration, but by its reaction it turns to its own advantage these external forces, and employs them in building up its structures.

"With this conception before our minds our definition of health and disease is clear. We have health when the adjustment is efficient and complete; disease when it falls short. Let me point out for a moment how this fits in with facts. In the first place, it recognises that health is not the same thing in different constitutions, at different ages, under different modes of life, and in different climates. Whether the individual is old or young, strong or weak, active or inert by nature, living a sedentary or open-air life, eating much or little, so long as the adjustment is complete and the organism is undergoing no deterioration of structure, and is discharging all its functions efficiently, we have health. When, on the other hand, either from the fault of the organism or from the stress of unfavourable influences, function is imperfect, or its exercise is attended with pain, or structural changes are taking place, there is disease.

"Health, then, not being an identical state of things in different constitutions and under different conditions, still less has disease, called by the same name, necessarily the same significance.

"This conception of disease, again, gives further extension to the fact, with which we are all familiar, that not every departure from normal action must be considered to be disease, and combated as such. When the organism has been subjected to some unusual external condition, it must react by some unusual process of adjustment, which, in a sense, is abnormal. The vomiting and purging by which indigestible food is got rid of will suggest itself to all of us as an illustration. Are we sure, let me ask, that pyrexia, which we combat so diligently, is not sometimes a part of the process of readjustment?

"Again, looking upon life as a sort of conflict between the organism and the forces outside, we can see that the disturbing influence of incident causes of disease will vary with the vigour of the organism. A fragile constitution will maintain its integrity through a long life under favouring conditions, while it would succumb to the first blow of real hardship; and a strong constitution will, at one time, yield to influences which, at another, it would successfully resist when the vital swing is vigorous, just as a top, when spinning rapidly, takes no notice of a push which, later, makes it swerve in circles, and finally totter and fall. The circles which our top describes in order to maintain its equilibrium represent those perturbations of a living organism through which it passes in righting itself after exposure to some morbific influence—its oscillations represent disease, and its fall death."

Gentlemen, you should not only study your patients in the wards of the hospital, but you should watch and note the action of the medicines given. How often the teacher at the bedside asks: "What medicine is this patient taking?" Not one of the would-be learners either know or care to know. "I took no interest in that case; it was only a very simple one, and the medicine ordered was not new." These are the cases that should be the most interesting to you—they are the cases you will meet with every day, and your want of attention now may be discounted by-and-by by the loss of a valuable life, and with it your own reputation.

One more caution. Do not attribute everything that happens after a drug is given to the action of that drug. In a medical journal this case is given:—

"PAROTITIS CAUSED BY ANTIPYRIN.

"As a contribution to the list of sequelæ after administration of antipyrin, will you allow me to give recent experience in the use of the drug?

"A young woman, suffering from influenza, had ordered for her some 10-grain powders of antipyrin. Immediately after swallowing one of these she experienced a feeling of suffocation, and she felt 'as if a knife was being scraped along the tongue and palate.' Then within ten minutes she called the attention of her friends to a swelling arising at each side of the face. I was sent for, and saw her within twenty minutes after the drug had been given, and found her in a very excited state, complaining of difficulty of breathing. The parotids on both sides were enlarged, as if the patient was suffering from mumps, and all within twenty minutes' time. The uncomfortable symptoms soon passed away, and by next morning the enlarged parotids had subsided."

Surely parotitis in acute catarrh is not so uncommon, and surely inflammatory symptoms have not been among the results of antipyrin.

I have said nothing of the great advances in surgery—nothing of the grievances of the Army Medical Service.

Of the advances of surgery you will, I hope, have ample opportunity of seeing the results during this session; and as to the Army Medical Department, I have to congratulate them on the storm of public opinion that has been raised. There is nothing John Bull dislikes so much as a storm of public opinion, and if it is big enough he will give anything to stop it, be it right or wrong.

Substantive and relative rank, both in military and civil life—after all is said and done—must depend on the man's own personality. In every rank, in every position, in every calling, there are "some who are wise, and some who are otherwise."

In conclusion, I would remind you that we all serve a Master who was Himself a physician; that in doing our duty in our noble profession we are following in His steps—at however great a distance it may be, still we are following.

Remember also that in the poor, the sick, and suffering, we should see Him who was also a sufferer. In the words of the old Elizabethan poet, Decker—

"The best of men
That ere wore earth about him was a sufferer:
A soft, meek, patient, humble, tranquil spirit,
The first true gentleman that ever breathed."

FRIEDRICHSHALL WATER.

"FRIEDRICHSHALL WATER has an ancient and established reputation amongst the aperient springs of Europe. Its vogue is increased by the care which is now taken to prevent the dilution which formerly occurred, owing to the mode of caption, so that it is now possessed of a strength some 20 per cent. greater than it could formerly claim. It has recently been carefully studied and warmly recommended by Professor Nothnagel, whose high clinical authority establishes anew its claims to favour."—*British Medical Journal*, August 23, 1890.

BENJAMIN WARD RICHARDSON, M.D., F.R.S.

On October 14th, 1890, a public breakfast was given by the United Temperance Council (by permission of the President and Fellows) in the Hall of the Royal College of Physicians of Ireland, to Dr. B. W. Richardson, on the occasion of his visit to Dublin to take part in the Father Mathew Centenary. One hundred and sixty sat down to breakfast. The chair was taken by the President of the Royal College of Physicians, Dr. Lombe Atthill. Amongst those present as guests were—Dr. B. W. Richardson, Sir Wilfrid Lawson, Bart., M.P., the President of the Royal College of Surgeons (Mr. Henry G. Croly), the President of the Royal Academy of Medicine (Dr. Samuel Gordon), Sir George Porter, Bart., Sir Robert Jackson, C.B., Sir William Stokes, Sir George Owens, Mr. J. Jordan, M.P., Rev. Father Nugent, delegate of the League of the Cross, Rev. Father Keating, delegate of his Eminence, Cardinal Manning, Dr. William Moore, Physician to the Queen, Rev. J. H. Bernard, F.T.C.D., J. H. Raper, London, Professor Barrett, and the following medical men—Drs. A. Atock, H. Benson, F.R.C.P., A. H. Benson, F.R.C.S., W. Bryce, Thos. Collins, E. MacDowel Cosgrave, F.R.C.P., Thos. Donnelly, F.R.C.S., Conway Dwyer, John Eustace, J. N. Eustace, Kendal Franks, F.R.C.S., Deputy Surgeon-General F. L. G. Gunn, C. Gunn, Edward Hamilton, F.R.C.S., A. J. Horne, F.R.C.P., A. H. Jacob, F.R.C.S., R. K. Johnson, Deputy Surgeon-General Joynt, R. Montgomery, R. J. Montgomery, W. J. Martin, F.R.C.P. Ed., Rawdon Macnamara, F.R.C.S., J. W. Moore, F.R.C.P., F. A. Nixon, F.R.C.S., L. R. Glasgow Patteson, F.R.C.S., J. F. Pollock, F.R.C.P., R. D. Purefoy, F.R.C.S., F. J. B. Quinlan, F.R.C.P., J. Roche, J. A. Scott, F.R.C.S., Wm. Stoker, F.R.C.S., W. J. Thompson, S. W. Thompson, William Thomson, F.R.C.S., D. Thomas, H. C. Tweedy, F.R.C.P., R. A. H. Williams.

The Chairman (the President of the Royal College of Physicians) said—I have great pleasure in introducing to the meeting Dr. Benjamin Ward Richardson, of London, a gentleman who is well-known as an earnest and able advocate of the good cause of temperance, to which, it may be said, he has devoted his life. That the College has granted the hall to the Temperance Council I look upon as a tribute to Dr. Richardson for the great and good work in which he has been so earnestly and so zealously engaged, and which he has come such a long distance to advocate. I am sure Dr. Richardson will receive a cordial and hearty welcome from this meeting. It is not my intention to occupy your time for more than a few minutes, for there are other speakers of greater importance to follow;

but, at the same time, I do not think it would be right to sit down without saying a few words bearing on the cause of temperance. It is right that I should say that I am not myself a total abstainer, and that I do not, as a rule, urge total abstinence on my patients—first, because I am aware that in many cases it is useless to do so; and secondly, because I look upon alcohol as given by the Giver of all good, who has also given tea, opium, and other things, which are, like alcohol, often abused. But, short of that, I am in favour of temperance, and in every way, both by precept and example, endeavour to encourage it. Some of the attacks of advocates of temperance are very effective, but some of them are injudiciously conducted, and fail. For instance, I have heard members of the medical profession spoken of harshly for having ordered alcohol and wine for their patients. Such language is a mistake. Medical men are well educated; they are able thinkers, and if the advocates of temperance want to carry their point with them they must argue, and strong language bordering on abuse is not argument, and it will not convince. Although I say this, and although I believe the medical profession generally act judiciously with regard to the use of alcohol and wine, yet I am far from saying that they are altogether blameless. On the contrary, I believe that in former times they did a great deal of harm. Some twenty or thirty years ago there was a regular *furore* in favour of alcohol and wine, urged on to a great extent by the influence of a well-known London practitioner, now dead, who formed an undue estimate of the value of alcohol, and ordered it on almost all occasions. His pupils were also taught to order it, and his example was followed by the practitioners throughout the country, with the most lamentable consequences. I could relate cases in which I believe lives were destroyed through that unfortunate practice.

All that is, however, changed now. No educated medical man now thinks of ordering alcohol indiscriminately, or without due consideration. When alcohol or wine is believed to be necessary, the exact quantity to be taken, as well as the time at which it should be taken, is stated. For myself, I seldom order the use of either, and when I do I prescribe the quantity and the time it should be taken. Above all, I impress upon my patients that wine or spirits should not be taken early in the day, and that neither the one nor the other should ever be taken without food. I have been urged to specify the length of time that whisky or wine should be administered, but that depends upon circumstances, and it is not always possible to do it. I would impress upon the junior members of the profession to carry out practically the limitation in the use of either wine or spirits to which I have alluded. I believe they are in the habit of doing that to a great extent. There are probably in the profession a few practitioners who order either spirits or wine because their patients like it; but there are black sheep in every profession, from the Church downwards, and those gentlemen are not worthy examples of their profession, and no such practice is known to the profession as a body. As to the medical aspect of the question, the public were under the impression, and are under the impression still, that wine makes blood, and that wine and alcohol give strength. On this point I recall a statement made to me by an old lady some years ago. She was in the habit of taking a glass of sherry at night, and I asked her to give up the practice. To that she replied that if she did she would lose her strength. I could not help laughing at her reply, and told her that she was mistaken. The medical profession do not teach that wine, beer, porter, or spirits produces strength. And I would add that all the claret in the universe would not manufacture one drop of blood. But these things can be taught to the public only by slow degrees; by slow degrees they will percolate down to the public mind. On one point I wish to be emphatic—alcohol given to children is always injurious, and its use in that respect ought to be strictly prohibited. I cannot sit down without saying a word with reference to the great and good man, the centenary of whose birth has been celebrated yesterday. I remember Father Mathew, and I remember his work. Thousands, millions took the pledge from him. Many relapsed, but many held on to the end of their lives, and the good work which he set going has never entirely subsided. Temperance has increased, and I have no doubt that the great meeting which was held yesterday in Dublin would have a great influence for good.

DR. RICHARDSON, who was warmly received, said:—It is the custom for those who are placed in the position I am placed in this morning, to say that it is one of the proudest positions of their lives. I might say that, but I should like to say more. I should like to say it is one of the happiest moments of my life, and I should like to say more still—that it is one of the most grateful moments of my life. I must express gratitude for the health that has sustained me now for sixty years. In fact, I can recall only one serious illness in my life, and that was connected indirectly with this country. During the famine years I was a student in Glasgow, and many of the poverty-stricken of Ireland were brought to that city and left upon the wharves and quays to be carried into the hospitals. I was a stripling myself when I entered St. Andrew's Lying-in Hospital as a student, and one of my comrades, a house surgeon, died, and great pressure was put upon everybody to attend the sick. Young as I was, I was sent out to attend many poor women in the pains and perils of childbirth. One day I was sent down to a place which was something like a cellar, and there I found an Irishman lying in fever, and his wife by his side, in fever also, and about to give birth to a child. I knew the place was pestiferous, and I knew my doom was sealed. There was no escape from the pestiferous atmosphere. I was about to turn away, but recollected the words, "Cowards die many times before their death—the valiant never taste of death but once," kept myself to my duty, and saw brought into this world a child suffering from the same fever from which the mother suffered. I went home knowing that I was smitten with the disease, and lay for fourteen weeks on a bed of fever, but I recovered in time, and from that day have never been seriously afflicted with pain or sickness. That child was born with fever. But mark the good result that sometimes comes out of apparent evil. When I first came to London to practise I saw an advertisement from the Medical Society of London offering a prize for the best essay on Diseases of the Fœtus in Utero. The recollection of that child came back upon me. I studied the subject carefully; wrote an essay, and gained the Fothergilian Gold Medal. Another cause for gratitude in the course of my professional life is that I have seen what very few have seen, two of the greatest advances in medicine—namely, the discovery of anæsthetics, which rendered operations painless, and the development of sanitary science to such an extent as almost to cause medicine to tremble in its presence. I now come to another phase of my life which I look upon with still greater pleasure, and that is my connection with this great cause of temperance. I was led into the cause in a way different from that which led Father Mathew into it; for Father Mathew seemed to have been filled with a divine enthusiasm for his work, and seeming as if inspired and brought into the world with a mission to accomplish.

I was employed simply as an instrument of the British Association for the Advancement of Science many years ago, to make some investigations upon the action of certain medicines on the human body. After many experiments, the result of which the medical profession well understood, it was suggested that I should investigate the action of the alcoholic series of chemical substances. I did so, and the result of the investigation was to elicit the facts that alcohol did not warm the body, but cooled it; that it did not give tone to the muscles, but that it rather relaxed them and reduced their power; that, introduced into the system, it caused extreme excitement which was followed by muscular depression, the muscular depression itself being followed in turn by temporary paralysis of the whole body. I had, therefore, to come to the conclusion that alcohol was not proper for the human body as a food or strength-giver, and that altogether it was an absolute mistake and blunder to use it as a beverage. In this I was not original, for one great Dublin physician, Dr. Cheyne, had arrived at similar conclusions. You will find in the records of some of the Arctic explorers—such as the records of Captain Parry, Dr. Rae, and others—that these conclusions are borne out, and that, with regard to the effects of cold in the Arctic regions, cold and alcohol go together, and produce the same depression; and that life in the Arctic regions is most tolerable when alcohol is excluded. By the pursuit of experiments from that time I was able, through science and medicine, to help the cause of temperance in the way it has been my good fortune to help it. But I went a step further than this. I found quite early in life that a certain number of people who came under my care at the Royal Hospital for Diseases of the Chest, and who were for the most part people of forty to fifty years of age, suffered from a peculiar form of consumption which I traced ultimately to one cause. They were all inebriates, and the disease was due to alcohol. This disease of the lung from the use of alcohol I named alcoholic phthisis. I afterwards made experiments on some of the lower animals, of keeping them under the influence of alcohol, and was astounded to see the rapidity with which alcohol produced disease, with results that were very fatal. When I learned this, after I had been working for years, I began to ask myself the question—If these are facts, and they are not denied, what ought I to do? For my own sake, for my own self-preservation—the most selfish of all motives—what ought I first of all to do? The answer was—abstain, and I abstained. For twenty years I have continued the process, always with perfect satisfaction of its value, and with the feeling that the health and strength I now maintain has been fostered and sustained more by that influence than by any other. Then I went one step further. Having got at the truth, as it seemed to me, and finding no adversary who controverted the facts which I had observed, I felt it my bounden duty to come out of the cloister of science to tell the world what I had learned and what I believed.

There was a little cloud at first over me in the medical world when I brought out these views. I was not quite so popular then with my brethren as I had been, or, as I am thankful to say, I now am. Some thought I had been seized with a fancy or passing dream that would fade away. But day by day I have seen the medical profession coming to recognise the truth, and now I am in the proud position of being President of a medical association of total abstainers which has branches in the three kingdoms, one of which here is presided over by Surgeon-General Gunn, and to which Mr. Croly has given his adhesion; and in their combined forces there are no fewer than 500 medical men under the standard, fighting the battle of temperance. I think this is good work, and believe it is the duty of every medical man to move in the same cause. Medical men physically hold the key of the position. The chairman spoke about the administration of alcohol in disease. Now I have never gone so far as to say I would not administer alcohol in disease if I thought it necessary and useful. If I wanted to relax the muscles I would use it, and under other circumstances I would use it in moderate quantity like any other drug. But I do not prescribe it in those unknown quantities of beer, gin, whisky, and wine, because I know the tricks of the trade in these articles too well. There is a mixing book that goes amongst the trade. I have read it, and have no confidence in that which men call wine and beer and spirits. I know not what is mixed with alcohol when it goes from the trade to the patient; so I follow this simple remedy—that when I want to prescribe alcohol I prescribe the real Simon Pure itself. I write it down as I would any other drug, and know well that when the prescription is no longer wanted the patient can not and will not use it. That is the true, scientific way of dealing with alcohol, and you will never regret prescribing alcohol in that form. It is our duty to follow up this question as medical men, and I feel proud to stand in this College and declare my faith. There are 50,000 persons a year in the United Kingdom who die from alcohol, and that number yields 150,000 months of disease at the very lowest. Is there any other disease so fatal? No. Pulmonary consumption comes next, and it destroys 2,000 less a year. Cancer destroys, in proportion, only 15,000, and the various kinds of epidemics taken together can but produce twice the number of deaths produced by alcohol. We, as medical men, knowing the terrible results produced by alcohol, ought to be the first to wipe out what we know to be a great blot on civilisation. In conclusion, if I could I would tell you the gratitude I owe to the President, to the College, and to my friends assembled here, for this remarkable distinction. I would tell you how it will help me in my career, and how it will help the cause of temperance; but I stand actually overwhelmed and benumbed, and all I have to say, and all I can say to you is that, "Poor as I am, I am a beggar even in thanks."

Mr. HENRY GRAY CROLY (President of the Royal College of Surgeons) said—I rise to propose a vote of thanks to Dr. Richardson for his address. It gives me very great pleasure to be present at such a gathering, and to meet Dr. Richardson in this Hall. With regard to the effect of alcohol in the treatment of disease, it is not a question which we can go into at a meeting like this. Graves "fed" fevers, did not stimulate them. Every physician and surgeon must be left to exercise his own judgment, and the responsibility lies upon him. As to directing a patient to take only a certain quantity of liquor at such and such a time, and not at other times, we often find the doctor's orders disregarded, and extra doses put in, and the alcohol taken at times when it should not have been taken. It used to be the practice in the case of operations to administer stimulants, but it was found that when strengthening and nourishing drink was given to the patients, such as beef-tea, &c., and stimulants were not given, there was less reactionary fever and less disturbance in the organs. The medical profession have in view the advancement of science, and in what way can we advance science more than by taking part in such meetings as these, and keeping down intemperance, and so making and bringing happiness into the homes of the people.

Sir **Wilfrid Lawson**, Bart., M.P., seconded the vote of thanks, which was then put to the meeting and passed.

The **President** of the Royal College of Surgeons having been called to the second chair,

Dr. **MacDowel Cosgrave** moved a vote of thanks to the Chairman for presiding.

Mr. J. H. **Raper** seconded the motion, which was passed by acclamation, and—

The President of the Royal College of Physicians, acknowledging the compliment, said the College of Physicians had been established for the promotion of public health, and in no way could it promote the public health better than by furthering the cause of temperance.

The proceedings then terminated.

INSANITY AFTER ACUTE SURGICAL OR MEDICAL AFFECTIONS.

The above is the title of an article by Dr. H. C. Wood, in the *University Medical Magazine* for Dec., 1889. Reasoning from the ætiological and symptomatical conditions, he believes that these insanities are identical. The symptoms develop at a time when the specific action of the poison upon the nervous organism has exhausted itself—namely, during convalescence. The insanities develop after diseases or affections in which there are no known specific poisons—to wit, childbirth, traumatism, and soforth. The general scope of the symptoms and the general course of the disorder are identical. There is always mental confusion—a mixture of excitement and mental power; and the cases nearly always end in complete recovery, if free from organic disease. He gives five illustrative cases, and it is worthy of remark that in one of them, which followed an attack of enteric fever, sulphonal had no hypnotic effect.

HÆMATOMA OF THE VAGINA COMPLICATING CHILDBIRTH.

Dr. A. H. Wright, Toronto, records (the *Montreal Medical Journal*, Nov., 1889) a case of hæmatoma of the vagina complicating childbirth. Bleeding from the tumour began when the labour reached the beginning of the second stage. Dr. Wright controlled it by pressure with the thumb inside the vagina and the forefinger outside the vulva. The child's head was then drawn down with a forceps until it made pressure on the bleeding point, and immediately on the completion of the second stage of labour the wounded vessels were secured. The patient made a good recovery.

SANITARY AND METEOROLOGICAL NOTES.

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Vital Statistics

For four Weeks ending Saturday, October 4, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Sept. 13.	Sept. 20.	Sept. 27.	Oct. 4.		Sept. 13.	Sept. 20.	Sept. 27.	Oct. 4.
Armagh -	0·0	5·2	5·2	0·0	Limerick -	13·5	18·9	9·4	24·3
Belfast -	24·5	25·8	20·4	19·1	Lisburn -	9·7	0·0	29·0	14·5
Cork -	22·1	12·3	20·1	21·4	Londonderry	23·2	10·7	7·1	8·9
Drogheda	8·5	21·1	8·5	4·2	Lurgan -	15·4	20·5	10·3	10·3
Dublin -	17·0	18·6	20·1	18·9	Newry -	28·1	17·6	17·6	7·0
Dundalk -	4·4	4·4	8·7	21·8	Sligo -	48·1	4·8	19·2	9·6
Galway -	23·5	6·7	10·1	10·1	Waterford -	13·9	11·6	23·2	13·9
Kilkenny	4·2	16·9	33·8	16·9	Wexford -	34·2	8·6	12·8	12·8

In the week ending Saturday, September 13, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 16·6), was equal to an average annual death-rate of 18·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·8 per 1,000. In Glasgow the rate was 21·2, and in Edinburgh it was 17·4.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 19·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in ten of the districts to 9·6 in Sligo—the 10 deaths from all causes registered in that district comprising 1 from diphtheria and 1 from diarrhœa. Among the 109 deaths from all causes in Belfast are 3 from whooping-cough, 1 from simple continued fever, 3 from enteric fever, and 11 from diarrhœa. The 13 deaths in Londonderry comprise 1 from each of the following diseases:—scarlet fever, diphtheria, and diarrhœa.

In the Dublin Registration District the registered births amounted to 178—94 boys and 84 girls; and the registered deaths to 117—50 males and 67 females.

The deaths, which are 65 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 17·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 2) of persons admitted into public institutions from localities outside the district, the rate was 17·0 per 1,000. During the first thirty-seven weeks of the current year the death-rate averaged 27·0, and was 1·5 under the mean rate in the corresponding period of the ten years 1880–89.

Eighteen deaths from zymotic diseases were registered, being 5 over the low number for the preceding week, but 23 below the average for the 37th week of the last ten years. They comprise 1 from measles, 1 from whooping-cough, 2 from enteric fever, 10 from diarrhœa (being 5 over the number of deaths from that disease in the week ended September 6, but 10 under the average for the 37th week of the last ten years), besides 1 from dysentery.

Thirteen cases of enteric fever were admitted to hospital, against 4 admissions for the preceding week and 8 for the week ended August 30. Two enteric fever patients were discharged, 1 died, and 46 remained under treatment in hospital on Saturday, being 10 over the number in hospital at the close of the preceding week.

Only 1 case of measles, and 1 of scarlatina were admitted to hospital. In the preceding week 3 cases of the former and 2 of the latter disease were received. No cases of typhus have been admitted during the last three weeks. Six cases of measles, 6 of scarlatina, and 3 of typhus remained under treatment in hospital on Saturday.

Seventeen deaths were caused by diseases of the respiratory system, being equal to the number for the preceding week, but 4 under the average for the thirty-seventh week of the last ten years. They comprise 9 from bronchitis and 6 from pneumonia or inflammation of the lungs.

In the week ending Saturday, September 20, the mortality in twenty-eight large English towns, including London (in which the rate was 16·2), was equal to an average annual death-rate of 19·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·6 per 1,000. In Glasgow the rate was 23·9, and in Edinburgh it was 16·7.

The average annual death-rate in the sixteen principal town districts of Ireland was 18·4 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in nine of the districts to 4·3 in Wexford, where 1 death from whooping-cough was registered. Among the 115 deaths registered in Belfast are 1 from typhus, 2 from whooping-cough, 2 from enteric fever, and 11 from diarrhœa.

In the Dublin Registration District the registered births amounted to 221—108 boys and 113 girls; and the registered deaths to 131—69 males and 62 females.

The deaths, which are 45 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 19·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 18·6 per 1,000. During the first thirty-eight weeks of the current year the death-rate averaged 26·8, and was 1·6 under the mean rate in the corresponding period of the ten years 1880-89.

Twenty-one deaths from zymotic diseases were registered, being 3 in excess of the number for the preceding week, but 15 under the average for the 38th week of the last ten years. They comprise 2 from measles, 1 from typhus, 2 from whooping-cough, 1 from diphtheria, 3 from enteric fever, 4, only, from diarrhœa (against an average of 18 for the corresponding week of the last ten years) and 2 from erysipelas.

The number of cases of enteric fever admitted to hospital is 7, being a decline of 6 as compared with the admissions for the preceding week. Six enteric fever patients were discharged, 3 died, and 44 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, September 13.

Two cases of typhus were admitted to hospital. They are the only cases of this disease admitted since the week ended August 23. Two typhus patients were discharged during the week and 3 remained under treatment in hospital on Saturday.

No cases of scarlatina were admitted to hospital, and only 1 case of measles was received. Six cases of scarlatina and 6 of measles remained under treatment in hospital at the close of the week.

Only 12 deaths from diseases of the respiratory system were registered, being 11 below the average for the corresponding week of the last ten years, and 5 under the number for the week ended September 13. They comprise 7 from bronchitis and 4 from pneumonia or inflammation of the lungs.

In the week ending Saturday, September 27, the mortality in twenty-eight large English towns, including London (in which the rate was 17·2), was equal to an average annual death-rate of 20·0 per 1,000 persons

living. The average rate for eight principal towns of Scotland was 18·7 per 1,000. In Glasgow the rate was 22·2, and in Edinburgh it was 16·4.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 18·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in eight of the districts to 7·0 in Newry—the 5 deaths from all causes registered in that district comprising 2 from diarrhœa. Among the 91 deaths from all causes registered in Belfast are 13 from diarrhœa and 1 from each of the following diseases—scarlatina, whooping-cough, diphtheria, and enteric fever. The 31 deaths registered in Cork comprise 1 from typhus and 1 from enteric fever.

In the Dublin Registration District the registered births amounted to 182—100 boys and 82 girls; and the registered deaths to 141—74 males and 67 females.

The deaths, which are 33 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·8 in every 1,000 of the estimated population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 20·1 per 1,000. During the first thirty-nine weeks of the current year the death-rate averaged 26·7, and was 1·6 under the mean rate in the corresponding period of the ten years 1880–89.

Twenty-three deaths from zymotic diseases were registered, being 2 over the number for the preceding week, but 10 under the average for the 39th week of the last ten years. They comprise 1 from measles, 1 from whooping-cough, 4 from enteric fever, 12 (all of children under 5 years of age) from diarrhœa, and 1 from dysentery.

Fourteen cases of enteric fever were admitted to hospital, being 7 in excess of the admissions for the preceding week and 1 over the number for the week ended September 13. Four enteric fever patients were discharged and 54 remained under treatment on Saturday, being 10 over the number in hospital at the close of the preceding week.

During the three weeks ended September 13, no cases of typhus were admitted to hospital, but in the week ended September 20, 2 cases, and during this week 8 cases of the disease were admitted. One typhus patient died, and 10 remained under treatment on Saturday, being 7 over the number in hospital at the close of the preceding week.

Two cases of scarlatina were admitted to hospital and 2 patients were discharged. Six cases of the disease remained under treatment in hospital on Saturday.

Only 8 deaths from diseases of the respiratory system were registered, being 4 under the low number for the preceding week, and 15 under the average for the 39th week of the last ten years. They comprise 5 from bronchitis and 2 from pneumonia or inflammation of the lungs.

In the week ending Saturday, October 4, the mortality in twenty-eight large English towns, including London (in which the rate was 16·8), was equal to an average annual death-rate of 19·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·2 per 1,000. In Glasgow the rate was 19·0, and in Edinburgh it was also 19·0.

The average annual death-rate in the sixteen principal town districts of Ireland was 17·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in ten of the districts to 4·4 in Dundalk—the 5 deaths from all causes registered in that district comprising 1 from enteric fever. Among the 85 deaths from all causes registered in Belfast are 1 from scarlatina, 1 from whooping-cough, 2 from enteric fever, and 6 from diarrhœa.

In the Dublin Registration District the registered births amounted to 162—84 boys and 78 girls; and the registered deaths to 131—62 males and 69 females.

The deaths, which are 29 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 19·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 18·9 per 1,000. During the first 40 weeks of the current year the death-rate averaged 26·5, and was 1·7 under the mean rate in the corresponding period of the ten years 1880–89.

Twenty-four deaths from zymotic diseases were registered, being 1 over the number for the preceding week, but 5 under the average for the 40th week of the last ten years. They comprise 1 from typhus, 2 from whooping-cough, 1 from diphtheria, 3 from enteric fever, 12 (11 of which were of children under 5 years of age) from diarrhœa, and 1 from erysipelas.

The number of cases of enteric fever admitted to hospital is 8, being a decline of 6 as compared with the admissions for the preceding week. Six enteric fever patients were discharged, 2 died, and 54 remained under treatment on Saturday, being equal to the number in hospital on Saturday, September 27.

Only 1 case of typhus was admitted to hospital, against 8 for the preceding week. Ten cases of this disease remained under treatment in hospital on Saturday.

The hospital admissions include also 4 cases of measles, but no cases of scarlatina. Five cases of measles and 5 of scarlatina remained under treatment in hospital at the close of the week.

Thirteen deaths from diseases of the respiratory system were registered, being 5 over the very low number for the preceding week, but 11 under the average for the 40th week of the last ten years. They comprise 8 from bronchitis, 2 from pneumonia or inflammation of the lungs, and 1 from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N. Long.* 6° 15′ *W., for the Month of September,* 1890.

Mean Height of Barometer,	30·061 inches.
Maximal Height of Barometer (on 6th, at 9 a.m.),	30·467 „
Minimal Height of Barometer (on 20th, at 9 p.m.),	29·237 „
Mean Dry-bulb Temperature,	58·9°.
Mean Wet-bulb Temperature,	56·7°.
Mean Dew-point Temperature,	54·7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·429 inch.
Mean Humidity,	86·6 per cent.
Highest Temperature in Shade (on 7th),	71·2°.
Lowest Temperature in Shade (on 23rd),	48·3°.
Lowest Temperature on Grass (Radiation) (on 1st and 19th),	42·0°.
Mean Amount of Cloud,	59·2 per cent
Rainfall (on 14 days),	2·469 inches
Greatest Daily Rainfall (on 20th),	·878 inch.
General Directions of Wind,	S.W., W., S.

Remarks.

As in 1888 and 1889, so in 1890, September proved a fine month, with a high mean barometer. The prevailing winds were from warm quarters—chiefly S.W. There was no excessive rainfall, and temperature was remarkably high. From the 5th to the 15th, inclusive, conditions were anticyclonic, and the weather was summerlike. On the 20th a violent gale occurred, accompanied by very heavy rain. Taken, however, as a whole, the month was very favourable from an agricultural as well as from a health point of view.

In Dublin the mean temperature (59·6°) was much above the average (55·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 58·9°. In the twenty-five years ending with 1889, September was coldest in 1886 and in 1882 (M. T. = 53·0°), and warmest in 1865 (M. T. = 61·4°). In 1880, the M. T. was as high as 58·6°; in the year 1879 (the "cold year"), it was 54·3°; in 1887, it was 54·0°; in 1888, it was 54·4°, and in 1889, 55·8°, or exactly the average. So warm a September has not occurred for a quarter of a century.

The mean height of the barometer was 30·061 inches, or 0·151 inch above the average value for September—namely, 29·910 inches. The mercury rose to 30·467 inches at 9 a.m. of the 6th, and fell to 29·237 inches at 9 p.m. of the 20th. The observed range of atmospherical pressure was, therefore, 1·230 inches—that is, a little less than one inch and a quarter. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 58·9°, or 2·6° *above* the value for August, 1890. Using the formula, *Mean Temp.* $=$ *min.* $+$ (*max.* — *min.* $\times$ ·476), the value was 59·3°, or 3·8° above the average mean temperature for September, calculated in the same way, in the twenty-five years, 1865–89, inclusive (55·5°). The arithmetical mean of the maximal and minimal readings was 59·6°, compared with a twenty-five years' average of 55·8°. On the 7th, the thermometer in the screen rose to 71·2°—wind, S.S.E.; on the 23rd the temperature fell to 48·3°—wind, N.W. The minimum on the grass was 42·0° on the 1st and 19th. The rainfall was 2·469 inches, distributed over 14 days—the rainfall was somewhat above and the rainy days were somewhat below the average. The average rainfall for September in the twenty-five years, 1865–89, inclusive, was 2·176 inches, and the average number of rainy days was 14·7. In 1871 the rainfall in September was very large—4·048 inches on, however, only 13 days. On the other hand, in 1865, only ·056 inch was measured on but three days. In 1888, the rainfall was only ·728 inch on 10 days, and in 1889, 1·043 inches fell on 13 days.

High winds were noted on as many as 14 days, but attained the force of a gale on only three occasions—the 20th, 26th, and 30th. A solar halo appeared on the 10th, and sheet lightning was seen on the night of the 14th.

The first week happily witnessed a marked improvement in the weather, which became much warmer and finer—particularly in the east of Ireland and the S.E. and S. of England. This fortunate change was brought about by the establishment and development of an anticyclone, which had already appeared over Ireland on Saturday, August 30. At the beginning of the period temperature was very low and the wind was northerly. On Monday, September 1, however, a depression in the far N.W. caused a S.W. wind, which brought with it warmth and rain. The downpour was heavy in the N. and N.W. of Ireland, but moderate on the east coast. It blew freshly from S.W. or W. until Thursday, after which day light, variable winds set in. The week closed with beautiful weather. At Munich 7·10 inches of rain fell in the seven days ending at 8 a.m. of Friday, the 5th. In Dublin the mean height of the barometer was 30·262 inches, pressure ranging from 30·104 inches, at 9 a.m. of Tuesday (wind, S.W.), to 30·467 inches, at 9 a.m. of Saturday (wind, N.). The corrected mean temperature was 59·9°—the mean dry bulb reading at 9 a.m. and 9 p.m. being 59·7°. The rainfall was ·242 inch, on three days. Of this quantity ·162 inch was referred to Wednesday, the 3rd, when the fall at Greystones was ·349 inch.

The improvement in the weather observed in the first week developed in, and continued through, the second week. It is true that strong winds were felt at times, while rain fell in the N.W. of Ireland and over the greater part of Scotland on several days; but in the E. and S. of Ireland and almost throughout England the week was practically rainless. At the beginning the centre of a well-formed anticyclone was found over Lincolnshire, where the height of the barometer at this time slightly exceeded 30·50 inches. This system subsequently moved slowly southwards, causing southerly winds and high temperature in Ireland and afterwards less settled conditions in the N.W. of this country. On Wednesday a new, but not so pronounced an, area of high pressure began to spread over Ireland from the westward, whence it continued its course in an easterly direction, reaching England on Friday. Under its influence a further spell of fine weather was enjoyed. In Dublin the mean height of the barometer was 30·279 inches. The corrected mean temperature was 60·3°. The mean dry bulb temperatnre at 9 a.m. and 9 p.m. was 59·4°. There was no measurable rainfall at this station, although light showers fell on Tuesday.

The fine weather experienced during the previous two weeks came to end in the course of the third seven-day period, which—having opened fair and warm—closed with a tempest and downpour of rain. This unfortunate change was brought about by the retreat of the anticyclone towards N.E., while barometrical depressions of increasing intensity encroached more and more upon the British Isles as the week advanced. Even on Sunday signs of the untoward change were not wanting in Ireland, where a southerly wind freshened, cloud increased, and sheet lightning was seen after dark. At night also rain fell heavily on the W. coast. It was not until Wednesday morning, however, that the wet weather reached the E. coast, and on this and the following day thunderstorms occurred in England. The most extensive and deepest of the series of depressions arrived on Saturday, which proved a day of storm and rain. In Dublin the mean height of the barometer was 29·776 inches, pressure decreasing intermittently from 30·154 inches, at 9 a.m. of Sunday (wind, S.S.E.), to 29·237 inches, at 9 p.m. of Saturday (wind blowing a gale from S. by E.). The corrected mean temperature was 57·5°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 58·0°. Rain fell on five days, to the amount of 1·728 inches, ·434 inch being measured on Wednesday, ·310 inch on Friday, and ·878 inch on Saturday. Sheet lightning was seen on Sunday night. The rainfall for the week at Knockdolian, Greystones, was 2·010 inches.

Opening with storm and rain, the fourth week (21st–27th inclusive) closed in sunshine and the warmth of midsummer—the intervening period being one of cloud and sunshine; passing showers and fresh or squally westerly winds. At 8 a.m. of Sunday the centre of a cyclone of great energy was found over Mayo, whence it had advanced from Kerry during the previous night. The barometer read 29·04 inches at Belmullet, but had been down to 28·81 inches at Valentia Island, in Kerry, at 6 p.m. the previous day. Fresh southerly (S.E. to S.W.) gales and heavy rain accompanied the disturbance, while thunderstorms occurred in England and France on its outskirts. The system travelled slowly away to N.N.E., and finally dispersed. On Thursday a large anticyclone advanced from the Atlantic over our southern districts, while depressions skirted our northern coasts. The result was a moderate gale from W. and showers at exposed stations. On Saturday the weather became brilliant and very warm. In Dublin the mean height of the barometer was 30·027 inches. The corrected mean temperature was 58·3°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·5°. The rainfall was ·128 inch on three days; of this amount ·052 inch fell on Sunday. A lunar rainbow was seen at Greystones on the evening of Wednesday, the 24th.

The closing days of the month were breezy, and showers fell at times. On the night of the 30th there was a fresh S.W. gale, and rain fell heavily.

The rainfall in Dublin during the nine months ending September 30th has amounted to 20·855 inches on 151 days, compared with 10·968 inches on 112 days during the same period in 1887, 17·992 inches on 131 days in 1888, 19·936 inches on 147 days in 1889, and a twenty-five years' average of 19·734 inches on 142·8 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in September, 1890, was 3·155 inches, distributed over 11 days. Of this quantity ·760 inch fell on the 17th, and ·750 inch on the 20th.

INSTRUMENTS FOR EMPTYING THE BLADDER AFTER LITHOTRITY.

F. N. Otis, M.D., gives (*New York Med. Journal*, Aug. 24th, 1889) a well-illustrated account of the various instruments designed from time to time by Prof. Bigelow, Sir Henry Thompson, and himself, for evacuating the bladder after lithotrity. Dr. Otis has, in his most recent model, greatly simplified the parts, and that without in any way lessening its efficacy. It weighs 10 ozs., whilst Prof. Bigelow's weighs 24 ozs. Dr. Otis has built up his aspirator on an entirely different plan from that followed by his famous co-inventors, who have merely modified each other's ideas from time to time, but never departed far from a common plan.

PERISCOPE.

IS APOMORPHIN A SAFE EMETIC?

Dr. J. Brown, writing in the *Brit. Med. Jour.*, March 9, 1889, observes:—"Recently the above query has appeared in the *British Medical Journal.* I wrote an article on 'Apomorphine, a Safe, Certain, and Quick Emetic,' which appeared in the *British Medical Journal* for May 12th, 1883, p. 907. It occurred to me that it might be of interest to those correspondents and others if I gave a brief account of my further experience of this most valuable emetic. There are few, if any, of the new drugs introduced into the *British Pharmacopœia* which have sustained the high opinion of their therapeutical value with such unvarying success and with so few failures as apomorphine. The average interval between the hypodermic injection and the emesis is 10·1 minutes. As a rule, the vomiting only occurs two or three times at short intervals. The depression is only what might be expected after an ordinary vomiting. I have observed no case approaching fatal or even serious collapse. I have the greatest confidence in giving it hypodermically to any of my children who may require an emetic. Everyone must have observed how difficult it is to make an infant or any child under four years vomit by giving emetics by the mouth. I have been surprised that authors on children's diseases do not recommend apomorphine hypodermically. Dr. Angel Money's work on 'Treatment of Diseases in Children' is very excellent, but I find no mention of apomorphine as an emetic. I believe there is no emetic 'so safe, certain, and quick' for children. In adults, ordinary emetics usually succeed; not so in children. The cases reported in which collapse occurred were adults. It may be that apomorphine may occasionally cause collapse—although I have not observed any case—in adults, yet be perfectly safe for children, similar to the action of chloroform in adults and in children. Apomorphine is the emetic *par excellence* for children when given hypodermically."

APOMORPHIN.

Dr. Latimer (*British Medical Journal*, April 20, 1889) writes:—"The recent discussion on apomorphine in the *British Medical Journal* is my inducement in venturing to send some notes on the subject of its suitability as an emetic. I regard it as a drug which is little less than wonderful in its action, and I should be very sorry to see its use discontinued through any belief in its being a dangerous remedy. I can only say that I have never seen any untoward symptoms follow its exhibition.

Poisoning by Alcohol and Petroleum.—J. B., a young man, was seized, when at his mother's house, with epileptiform convulsions. As his breath had an odour of drink about it, I injected one-twelfth of a grain of apomorphine. In a very short time he vomited freely, bringing up a quantity of queer-smelling fluid which I afterwards ascertained to have been beer, which had been adulterated with petroleum, as a practical joke. After free vomiting, he regained consciousness, and the fits ceased. *Belladonna Poisoning.*—At 5 p.m., called to see a young, single, woman who had drank one ounce of belladonna liniment at 3 p.m. Found her supported by friends, in a sitting position, and talking nonsense; pallid countenance, dilated pupils. At once injected one-tenth of a grain of apomorphine; in about six minutes this produced violent vomiting, and about half a cupful of a greenish liquid, smelling strongly of camphor, was brought up. By dint of continued interference she at last roused up and tried to strike and to kick me. There was marked incoherence of speech. At 10 p.m. I found the pupils of the eyes beginning again to contract. She was very gay in manner, saying all sorts of absurd things, and crying out that people and animals were in the room. Next day she was quite well. *Post-partum Eclampsia.*—I was called at 8 a.m., on August 25th last, to see Mrs. B., a young primipara, who had been delivered of a healthy child on the 24th, at 1 35 p.m. At 3 p.m. of that day she became suddenly convulsed, and these convulsions recurred about every fifteen minutes afterwards up to the time of my visit, next day. At once administered one-tenth of a grain of apomorphine by hypodermic injection, and as no vomiting ensued, I repeated the dose in a quarter of an hour. She was then unconscious, lying with dilated pupils and insensitive conjunctivæ; her pulse was full. Temperature, 102° in the axilla. The apomorphine acted freely. She regained partial consciousness on the morning of the 26th, and complete consciousness on the 29th. From that time she made a perfect recovery. *Epilepsy (Status Epilepticus).*—R. M., locomotive driver, a middle-aged man, was seized with convulsions on March 30th. He was removed home and I was sent for. When I saw him he was in the epileptic state—fit after fit occurring with scarcely any intermission. The convulsive movements were general and were most violent in character. On inquiry of his landlady, I found that, although not drunk, he had certainly taken more beer than was good for him on the preceding night; so I administered a hypodermic injection of one-tenth of a grain of apomorphine. In about six minutes' time he vomited freely, and brought up an incredible quantity of undigested food, amongst which a number of very large masses of undigested beef were noticeable, some of them were four inches by two inches in size. From the time of this vomiting the convulsions entirely ceased, and he regained consciousness in about five hours. He had been in convulsions for over three hours. Now I think these cases are interesting as showing in what profound conditions of unconsciousness the drug apomorphine will act as an emetic. I regard it as one of the most valuable remedies that we have in the list of materia medica."

ALOPECIA.

Our contemporary, *Revue de Thérapeutique*, recommends the following treatment for alopecia:—Take of

Distilled water - -	150 grammes,
Corrosive sublimate - -	½ a gramme,
Glycerine - - -	50 grammes,
Eau de Cologne - -	50 grammes.

Mix. Apply to the skin of the head, and afterwards use

Marrow - - - -	100 grammes,
Tincture of benzoin - -	3 grammes,
Salicylic acid - - -	2 grammes.

Mix, and make a hair pomade.

ON THE GERMICIDAL ACTION OF BLOOD-SERUM AND OTHER BODY-FLUIDS.

Dr. T. Mitchell Prudden details some interesting experiments on the action exerted by ascitic fluid, hydrocele fluid, amniotic fluid of pig, and normal human urine on pure cultures of Bacillus typhosus and on Staphylococcus pyogenes aureus. He first gives a summary of the results of the works of Nuttall, Büchner, Nissen, and Liebarsch on the action of blood-serum on micro-organisms, and details experiments of his own in which he confirms those results, showing that while blood-serum is inimical to the growth of Bacillus typhosus, it exerts no deleterious action on Staphylococcus pyogenes aureus. The results of the new experiments are given in tables, and show that ascitic fluid and hydrocele fluid exert a very destructive influence on typhoid bacilli; that this action is lost if the fluids be heated for a short time to 60° C.; that water or salt solution has not this action; and that therefore the action of the body-fluid is not due to the simple physical character of the medium, but to some element in its constitution which stands in close relationship with the vitality of the organism from which it was derived. This action is not exerted by all body-fluids. Fresh human urine has much the same action as water, while in the liquor amnii of the pig the typhoid bacilli multiply enormously. On Staphylococcus pyogenes aureus ascitic fluid and hydrocele fluid are without action. The following is the summary of the author's conclusions in his own words:—"It would thus appear, as the general result of all this recent work, that fresh blood-serum possesses, though in different degrees in different animals, and in varying potency with the different bacterial species, a most marked germicidal power; that a similar germicidal power resides in fresh human non-inflammatory transudations; that this power is not directly associated with the formed elements of the blood or transudation, but is in some way dependent upon their albuminoid constituents. It would furthermore appear that this singular, and apparently most significant, capacity of the body-fluids is intimately associated with that complex condition which we call life."—*New York Medical Record*, Jan., 1890.

DIPHTHERIA.

Dr. Caldwell prescribes, in diphtheria, the following spray every half hour, and milk as food every two hours:—Papaïn, 10 grammes; hydronaphthol, 0·15 gramme; hydrochloric acid, 15 drops; glycerine, 12 grammes; distilled water, 120 grammes—make a solution.—*Les Nouveaux Remèdes.* No. 18.

A CASE OF DIABETES BENEFITED BY PHOSPHORUS.

Dr. Balmanno Squire reports the following interesting clinical case in the *British Medical Journal*:—A gentleman, aged sixty, was brought to him on October 9th, 1889, by Dr. Williams Jones, of Manchester. His patient for a long time had been affected somewhat severely with eczema of his face, neck, and upper limbs, including his hands. Dr. Jones had previously consulted two or three other practitioners as to his patient's condition, and informed him that his patient, who had become much worn out from want of sleep, was now willing to do whatever might be required of him. Dr. Jones also informed Dr. Squire that his patient had for long been affected with diabetes, for which he had treated him. It was agreed that, in addition to certain local remedies, the patient should take phosphorus "perles" for the improvement of the eczema. Accordingly the patient took one "perle" three times a day for three days, beginning November 1st; and the dose was then increased to two "perles" three times a day. On November 11th the patient visited Dr. Squire at Dr. Jones's request, and certainly as to his eczema he was nearly quite well, and he enjoyed sound sleep at night. He was also greatly better of his diabetes, very suddenly and very markedly so. He had been used to get out of bed four or five times in the night to pass water; but, for the previous four or five days, he had not had any call of the kind at night. The quantity that he passed in the twenty-four hours had for long been a very considerable quantity, but it had suddenly diminished in amount very notably. He had suffered from constant thirst, which he was compelled to assuage frequently. He was no longer troubled with thirst. The quantity of phosphorus that the patient took may be estimated from the basis that each of the "perles" contained one-thirtieth of a grain of phosphorus dissolved in oil. So that, for the first three days of his phosphorus treatment, he took a tenth of a grain a day, and for the remaining seven days he took a fifth of a grain daily. He was fairly under the influence of phosphorus;

moreover, he had just begun to experience a slight but decided degree of nausea from its use. That the administration of phosphorus acts most decidedly on the liver is well known, because, in undue and over-prolonged doses, phosphorus is capable of producing fatty degeneration of that organ. This circumstance would seem to afford the clue to its marked action in this case in controlling diabetes. It is possible that the effect of the phosphorus may be due to its action on the nervous system.

CIMICIFUGA RACEMOSA.

If Cimicifuga racemosa possesses anything like the therapeutic virtues ascribed to it by Dr. S. Kurse it will rapidly rise in medical esteem. He states that the fluid extract, in five-drop doses, commenced some months before labour is expected, gets rid of the many inconveniences women suffer from during that period. In labour it relaxes the muscular tissues of the parturient parts, facilitating the delivery and diminishing the chance of perineal laceration. After the delivery it totally changes its physiological action and produces well-marked uterine contraction—at least such is Dr. S. Kurse's opinion.—*La Presse Médicale Belge*, January, 1890.

BRYONIA ALBA.

MM. Petresco et Urbenu (*La Presse Médicale*, January 19th, 1890) claim for the root of white bryony all the medicinal properties of ergot and hamamelis virginica, and state that it is reliable in cases of epistaxis, hæmoptysis, and metrorrhagia.

ANTIPYRIN.

Antipyrin is contra-indicated, according to Dr. Humphreys (*Practitioner*), in all cases of cardiac weakness; after exhaustive hæmorrhages; during menstruation; in the latter stages of tuberculosis; and in the latter stages of long-continued fever.

HECTIC FEVER OF PHTHISIS.

For the hectic fever of phthisis Liebermeister (*Bulletin Medical*, Feb., 1890) recommends the following prescription:—℞. Quinine sulph., gr. 30; digitalis, gr. 8; ext. gentianæ, q.s.; ft. pil., xl. Six to ten pills daily.

CREASOTE IN PHTHISIS.

Dr. Wm. H. Flint recommends (*New York Medical Journal*, July 26th, 1890) the use of an emulsion composed of cod-liver oil, 40 parts, and mucilage of acacia 60 parts, each drachm containing two minims of creasote. In suitable cases the emulsion was given every two hours, and the dose increased up to the point of toleration, which in the majority of the cases was about ten or twelve minims per *diem*. If the patient can be persuaded to adopt temporarily an exclusively milk diet, the creasote emulsion may be administered in the milk, being thoroughly mixed with the latter by means of energetic shaking. If intolerance of creasote is shown by any one mucous surface an effort should be made to employ some other channel of introduction, in order that the continuity of the treatment shall not be interrupted.

HENBANE.

In this iconoclastic age old beliefs are shaken. We thought nothing was more firmly settled than that the leaves of biennial henbane were superior to those of the annual. This belief is shown to be an error by Mr. Gerrard, who writes (*Pharmaceutical Journal*, Sept. 6th, 1890):—"From a table showing the yield of alkaloids from 1000 parts it appeared (1) that annual henbane leaf, biennial henbane first year's leaf, and biennial second year's tops have practically the same alkaloidal value; (2) that biennial henbane first year's root contains two and a half times as much alkaloid as the leaves or tops of either variety; and (3) that the locality of growth does not influence the amount of alkaloid formed. It would seem, therefore, that the preference shown for biennial over annual henbane leaves is not well founded."

GOITRE.

Dr. Wm. Osler reports (*Johns Hopkins Hospl. Bulletin*) the death of a woman from bleeding into a cyst of an immense goitre. Dr. Osler considers this the only case on record in which death can be traced to this cause.

MEDICAL APPOINTMENT OF A LADY.

Miss Jane B. Henderson, L.R.C.P. and L.R.C.S. Ed., has been appointed resident clinical assistant on the ladies' side of the Holloway Sanatorium, Hospital for the Insane, Virginia Water.

RUPTURE OF THE VAGINA.

Dr. Starkey, of Philadelphia, reports (*Med. and Surg. Rep.*) a case of complete laceration of the vagina, resulting in death. The rupture was caused by the introduction of a man's hand into the vagina during a drunken fit.

GELSEMIUM AS AN ANTIDOTE TO MORPHIN.

In a therapeutic note on gelsemium Dr. Hutchings (*Therapeutic Gazette*) recommends it as a reliable antidote to morphin. He gives the following directions:—"In treating a case of profound opium narcosis the effects of gelsemium should be carefully watched, and as the violent pulsations of the carotids grow less and the swollen, blue, congested condition of the face subsides, the dose should be lessened, the intervals prolonged, and strychnine resorted to with great caution."

THE USE OF ANIMAL MEMBRANE IN EXTRA-ABDOMINAL INTESTINAL SURGERY.

DR. WALDO BRIGGS describes (*S. Louis Medical and Surgical Journal*, July, 1890) a series of experiments on animals in which he opened the abdomen, cut and sutured the intestine, covered the stitches with membrane from any of the serous surfaces of a recently killed animal, covered for three to six hours with cotton wadding, and then restored the intestine *plus* the serous membrane to the abdominal cavity. At the end of the three to six hours he found that the membrane was so closely adherent as to form practically a part of the intestinal walls, that it had assumed a "living" character, and that all danger of escape of intestinal contents was at an end. The cases did well, and Dr. Briggs notes that there was in no instance an action of the bowels whilst the intestine was outside the abdominal cavity, and that its replacement was always followed by a natural motion. Dr. Briggs uses an ingenious ring and long pins to fix the intestine. He has not tried his method yet on the human subject.

MEGRIM.

Merks' Bulletin recommends the following powders for megrim:—

Citrate of caffein, - -	gr. 15,
Phenacetin, - - -	gr. 30,
Sugar of milk, - - -	gr. 15.

Mixed, and divided into ten powders. One every two or three hours.

ROTTERIN.

THIS last new antiseptic consists of a mixture of the chlorides of sodium and zinc with zinc sulphocarbolate, boric, salicylic, and citric acids and thymol. This is the simplified formula for the earlier preparation, containing, in addition to the above, corrosive sublimate and carbolic acid.

BRAIN-GRAFTING.

DR. W. GILMAR THOMPSON records (*New York Med. Journal*, 28th June, 1890) successful brain-grafting in cats and dogs. Portions of brain (2 c.c. and 1·5 c.c. respectively) were trephined from the left occipital region of a dog and cat, and the portion from the cat's brain was placed in the opening in the dog's brain. In seven weeks there was complete union through organised connective tissue of the contiguous portions of the two brains, and the portion of the cat's brain still maintained sufficient vitality to be distinctly recognised as brain tissue. Curiously enough there was sympathetic degeneration of the corresponding convolutions upon the opposite side of the dog's brain. The dog remained totally blind of the eye opposite the lesion, and there was descending secondary degeneration of the dog's brain at the side of the graft, hence the cat's cortex had not succeeded in acting as a nutrient centre for the dog's brain.

JEWISH IMMUNITY FROM PHTHISIS IN AUSTRALIA.

Dr. MacLaurin, President of the Board of Health of New South Wales, in an address delivered in January of this year, pointed out the great immunity from phthisis enjoyed by the Jews in Australia. He attributes this in great measure to the care taken by the Jews to avoid the consumption of meat which is in any way tainted by disease. "The slightest speck on the lungs (which are blown out to their full extent), or blemish of any kind, would be sufficient to condemn the carcass, and the butcher accredited by the Jewish Community would not be permitted to dispose of it." "In 1885, 1,095 persons died of consumption in New South Wales, being at the rate of 115·51 for each 100,000 of the population. If the Jewish rate had been general, only 79 would have died, being a saving of over 1,000 lives in one year."

BRIGHT'S DISEASE.

In a letter to the editor of the *University Medical Magazine*, Dr. Arthur V. Meigs draws attention to the existence, as one of the earlier clinical symptoms, in many cases of Bright's disease, of cough with pulmonary inflammation, and he finds the presence of endarterial changes in the lung-vessels very early in the disease.

HÆMORRHAGE FROM A TONSIL.

Dr. J. M. Crawford (*Southern Medical Record*) reports a case of severe bleeding following on the slicing off a portion of an enlarged tonsil. It was controlled by pressure on the cut surface. Four days afterwards, on removing a clot from the patient's throat, bleeding recommenced, and continued for several hours, until the boy fainted.

A NEW EMETIC.

Dr. Bastaki (*Vratch*, No. 42) draws attention to the emetic properties of the pith of the elder-tree. He recommends:—Pith of elder-tree, one part; water, ten parts. Make a decoction, and of this decoction give teaspoonful doses.—*Les Nouveaux Remèdes*, January 8th, 1890.

STERILISING INSTRUMENTS BY STEAM.

Charles W. Cathcart, F.R.C.S., recommends (*Edinburgh Medical Journal*, Aug., 1890) a method of sterilising surgical instruments by steam without rusting them. The instruments are placed in the inner compartment of a double vessel and water is boiled in the outer. After a time the steam is turned in on the instruments. By this plan the CO_2 is boiled out of the water before the steam reaches the instruments, and the instruments are raised to 100° C. by dry heat. The absence of CO_2 and the impossibility of steam condensing on the hot instruments prevents rusting. A full description and drawing of the efficacious, yet simple and cheap, apparatus is given.

LAPAROTOMY FOR PERFORATION IN TYPHOID.

The *Sei-I-Kwai* Medical Journal for April reports a case of typhoid ulceration, in which Dr. Kimura, of the Japanese Navy, performed laparotomy twenty-eight hours after the perforation, which was situated in the small gut near the cæcum. The perforated portion was turned inward, and the interrupted Lambert sutures inserted. The abdomen was washed out with antiseptics, and death resulted in nine hours.

WHOOPING COUGH.

Dr. G. See (*L'Union Médicale*) recommends the following powder, divided into two or six doses according to age, for whooping cough :—

Belladonna Root in powder	0 gr. 01 centigr.
Dover's Powder	0 gr. 025 centigr.
Washed Sulphur	0 gr. 20 centigr.
Powdered White Sugar	0 gr. 50 centigr.

Mix.

DEATH DURING ETHERISATION.

Death—sudden death—death not from asphyxia, but syncope, from ether to a patient who had previously borne both chloroform and nitrous oxide anæsthesia, is reported by Dr. Hunt, of the Wolverhampton and Staffordshire General Hospital, in the very number of the *British Medical Journal* which is devoted to the eulogy of ether. The *B. M. J.* is unfortunate in the subjects of its praise—dichloride of ethidene died under its fostering care.

CONGRESS OF OBSTETRICIANS.

On the 22nd and 23rd of September last the midwives of Prussia met together in Berlin, and received delegates from Austria. The meeting numbered about six hundred; and, following the example of modern society, they designated their congregation "The International Congress of Obstetricians," and, copying some recent meetings, they appointed old women vice-presidents.

RUPTURE OF THE SPLEEN DURING TYPHOID FEVER.

Dr. Santi Flavio (*Gazetta degli Ospitali*) reports a case of rupture of the spleen. The patient, a man twenty years of age, was admitted into St. John's Hospital, Turin, for typhoid fever, under the care of Professor B. Graziadei. He had during the course of the disease pleuro-pneumonia, and the pleura was tapped. This condition masked the symptoms of inflammation of the spleen, which was only discovered at the *post mortem*, when the viscus was found to have become a sac of pus and to have burst into the peritoneal cavity.

TOTAL EXTIRPATION OF THE LARYNX.

La Semaine Médicale reports the successful extirpation of the larynx of a patient of Dr. Roser, of Hanau.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Peptone of Meat and Peptonate of Iron (Denaeyer).

The Denaeyer's Peptonoids and Extract of Meat Company, Limited, of London and Brussels, have submitted to us samples of Sterilised Liquid Peptone of Meat and Peptonate of Iron. The Company have also been good enough to afford us an opportunity of testing the value of these specialties in hospital practice.

So far as our clinical experience has gone, we can testify to the dietetic worth of Denaeyer's preparations, which are more palatable—or, perhaps we should say, much less unpalatable—than meat extracts and peptonoids in general.

Impressed with the liability of ordinary peptones to decomposition, M. Alphonse Denaeyer, a well-known scientific chemist of Brussels, instituted a series of experiments with the object of obtaining a product whose power of preservation would be above suspicion. He adopted the liquid form, and as a result of his experiments at last secured the preservation of a product for an indefinite time by adopting in its preparation the means of sterilisation used in bacteriology. The product is prepared by the use of the natural digestive ferment and by a process rationally modelled on the function of gastric digestion.

The sterilised liquid peptone of meat, in the form of a thickish jelly, melts at a slight increase of temperature. It is of a pleasant odour, and has the flavour of a very concentrated beef tea. The preparation is clear, transparent, and of a bright amber-yellow colour.

It is entirely free from micro-organisms and perfectly sterilised, all attempts at cultivating, at the ordinary temperature and in the incubator, having yielded negative results.

Its composition—according to M. Denaeyer—is as follows:—

Dry Residue at 110° C. = 21 grammes, 920 per cent., of which—

Organic matter = 19·100 grammes per cent.
Mineral matter = 2·820 " "
21·920

Centesimal composition—

	Grammes per cent.		Grammes per cent.
Albumen	0·157,	corresponding in dry matter to	0·737
Gelatine	1·964,	„	8·978
Albumoses	7·091,	„	32·350
Peptone	7·274,	„	33·104
Mineral salts	2·391,	„	10·928
Extractive principles	3·043,	„	13·903
Water	78·080,	„	Nil.
	100·000		100·000

or, in dry matter, a richness of 65·454 per cent. of albumose peptone.

In examining the chemical reactions of the new product, M. Denaeyer had the good fortune to ascertain that it dissolved ferric hydrate, and shortly afterwards he found that it combined with this basis in definite chemical proportions. Peptonate of iron was thus discovered. This preparation presents the appearance of a brownish-red limpid liquid, slightly astringent and aromatic in taste. In reaction the liquid is neutral, and there is no precipitate of ferric hydrate on the addition of alkalis. Ferrocyanide of potassium gives only a precipitate of Prussian blue on the addition of a mineral acid to the mixture.

Alcohol and mineral acids precipitate peptonate of iron, but the latter is soluble when the acid is neutralised. We may draw from this that on coming into contact with the gastric juice in the stomach peptonate of iron is thrown down, and that it again becomes soluble in the intestine, where the medium is alkaline, and where it is absorbed. Peptonate of iron is stated to be the only ferruginous substance which possesses this peculiarity.

Liquid peptonate of iron is a one in ten solution of this compound. The following is its composition, according to M. Denaeyer:—

	Grammes	
Organic matter	7·270	per cent.
Mineral matter	2·540	„
Water	90·190	„
	100·000	

The composition of the organic matter is as follows:—

	Grammes	
Albumose	46·767	Equal to 83·905 per cent. of albumose peptone.
Peptone	37·138	
Albumen	4·153	
Undetermined	11·942	
	100·000	

The mineral matter is composed of potassium, sodium, chlorine, sulphuric acid, phosphate of calcium, and ferric oxide. The ferric oxide amounts to 1·30 per cent. of the solution, which corresponds to 55·118 per cent. of the ash.

Dithiosalicylate of Sodium.

THIS body is formed by the combination of two molecules of salicylate of sodium with two atoms of sulphur, and is represented by the chemical formula $(NaC_7H_6SO_3)_2H_2O$. In a paper in the *Revue Générale de Clinique et de Therapeutique*, Dr. Luderborn says:—"In 20 per cent. solution it destroys various bacilli and microbes in forty-five minutes; in doses of 3 grains, repeated twice in twenty-four hours, it has succeeded in arresting articular rheumatism where salicylate had failed, without producing gastric trouble, ringing in the ears, or any tendency to collapse."

The dithiosalicylate is prepared by a patented process by Dr. F. von Heyden, Nachfolger, Radebeul, near Dresden, and the agents for Great Britain are Messrs. Burroughs, Wellcome, & Co. The dose is from 3 to 30 grains.

A not inconsiderable experience of this preparation in hospital practice leads us to believe that in it we possess a valuable palliative and curative agent in the treatment of acute rheumatism.

Compound Sulphur Tabloids.

IN an article in the *Lancet* for April 6, 1889, Sir Alfred B. Garrod, M.D., drew attention to a formula he had devised for the continuous administration of sulphur in the form of a lozenge, to which he gave the name of the "Compound Sulphur Lozenge." Each of these lozenges contained 5 grains of precipitated sulphur (milk of sulphur) and 1 grain of bitartrate of potassium (cream of tartar). It is far from disagreeable, the cream of tartar giving it a pleasant, acidulous taste. The alternative effects of this combination when administered for a long time in small doses—one lozenge each night, or two at bed-time, or one each night and morning—were highly spoken of by Sir Alfred Garrod.

The enterprising firm of Messrs. Burroughs, Wellcome, & Co. have added this formula to their already extensive list of compressed tabloids, and the "Compound Sulphur Tabloids" form a convenient and tasteful means of exhibiting the therapeutically valuable combination of sulphur and acid tartrate of potassium. These tabloids disintegrate in the presence of moisture, and so dissolve freely in the mouth; they are also rather agreeable if crushed by the teeth and swallowed, the only perceptible taste being the refreshing acidity of the bitartrate. They are admirably suited for administration to children as a laxative, or as an alterative.

THE DUBLIN JOURNAL
OF
MEDICAL SCIENCE.

DECEMBER 1, 1890.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XIX.—*On the Modern Diagnosis of Diseases of the Stomach.*[a]

By J. M. PURSER, M.D.

WHILE in former times physiologists assigned to the stomach very exaggerated powers, both mechanical and chemical, and while it was looked on as the principal organ of digestion, at present the tendency is rather to minimise its functions and to assign to it a place in the act of digestion inferior and subordinate to that attributed to the pancreas. Until the proteolytic action of the pancreatic secretion was proved by Corvisart, Bernard, Kühne, and others, we knew no place where proteids were digested except in the stomach; but now the universally-recognised power of the pancreas to digest albuminous substances seems to make the stomach a superfluous organ, or to reduce its functions merely to those of a receptacle in which the food is retained for a time and passed on into the intestine gradually, so as not to over-distend the narrow tube of the duodenum, or to too greatly overtax the power of the pancreas.

There is not wanting experimental evidence that life and health may be maintained in the complete absence of stomach digestion. The entire stomach, or all but a very small portion, has been removed from a dog, and the animal has recovered and lived in good health. Czerny has succeeded in keeping a dog for five and a half years after this formidable operation, and at the time when he was killed he was lively, voracious, able to eat and digest as well as other dogs, and the assimilation of his food and character of his fæces were in all respects normal.

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[a] An Address delivered before the Royal Academy of Medicine in Ireland, on October 31st, 1890.

In the human subject cases have been observed of persons whose gastric contents were constantly found free from both hydrochloric acid and pepsin, in whom, nevertheless, digestion was fairly performed and the health was very good.

Very numerous experiments have been made on dogs into whose pylorus a fistula was established. The food was passed through this fistula into the duodenum, while the opening of the stomach was closed by an obturator. It was easy to keep these animals alive and in good health and nutrition, although the food was unacted on by the stomach, and digestion was exclusively intestinal. It was found that raw flesh was digested far more rapidly in the intestine than in the stomach. In one experiment there disappeared from the stomach in two hours 53 per cent., from the intestine 85·7 per cent., of the introduced nitrogen. Boiled eggs, rubbed up with salt solution, and boiled connective tissue, as skin, were well digested by the pancreas; while boiled flesh, raw connective tissue, and (curiously) finely-divided casein were not digested in the intestine, but caused diarrhœa, and were soon expelled.[a]

It would appear, then, from these observations, as if the digestive function of the stomach was not indispensable; and, in view of this, another function has recently been assigned to the organ which is, it is maintained, far more important than that of digesting proteids. The prominence given by recent researches to the action of micro-organisms is very great, and we are familiar with the idea that the greater part of the struggle for existence consists in a continuous warfare with these bodies. We know that every article of food or drink we take swarms with them, and the question naturally arose—How are the worst forms of putrefaction prevented in our intestines? How do we exist for a day without infection from the various pathogenic organisms which must perpetually find their way down our œsophagus?

We know that micrococci and bacteria thrive badly, or are killed, in an acid medium, and it has been supposed that the stomach, by virtue of its acid secretion, serves as a guard at the upper end of the alimentary canal to arrest or kill off the swallowed germs, which, if allowed passage into the intestine, would there induce abnormal putrefactions, or give rise to other abnormal conditions. This view has been brought forward in a most attractive way by Brieger,[a] who points out that the acidity of the gastric juice, as determined by Schmidt, Heidenhain, and Hoppe Seyler, is just of that degree which has been found by the experiments of Sieber, Nencki, and Miquel, to be effective in promoting the putrefaction of animal infusions.

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[a] Ogata. Arch. f. Anat. und Phys. Phys. Abtheilung. 1883. P. 89.

That such a germicidal function is performed by the stomach there can be little doubt. Alapy[b] found that the organisms which cause traumatic infection, as streptococcus pyogenes, erysipelas coccus, and staphylococcus pyogenes aureus, were killed in their passage through the stomach of healthy rabbits, and could not be found in the intestine; while, if the acidity of the gastric juice was diminished or neutralised, they passed without difficulty, and were found living in the entire intestinal tract.

MacFadyen,[c] however, found that the gastric juice did not exert such a destructive action on bacteria as is often stated. He experimented with nine kinds of organisms. All of these resisted four hours' action of HCl of 0·05 per cent. All except two—Koch's comma bacillus and the spirillum of Finkler and Prior—survived HCl of 0·1 per cent. Two only—staphylococcus aureus and the typhoid bacillus—withstood acid of 0·3 per cent., while all were killed by stronger acid.

Pepsin alone had no action, and, mixed with the acid, did not influence the results.

Spores are very resisting, and can easily resist the action of the gastric juice. Anthrax spores are killed by 2 per cent. HCl only on the tenth day.

In experiments made on dogs, who were fed with pure cultures of bacteria added to their food, it was found that the organisms could be got from the intestinal contents. Even such delicate organisms as B. anthracis and Koch's comma bacillus could, when given in water to fasting animals, pass through the stomach and be found living and capable of culture in the small intestine. The question is somewhat complicated by the fact that in the intestine the germs grow in an oxygen-free medium. This will explain why the number of germs which can be detected by the microscope is greater than those which can be cultivated from the intestinal contents. MacFadyen found that when he made his cultures anaerobically in an atmosphere of hydrogen the number of colonies was far greater than that got by ordinary methods.

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[a] Lehrbuch d. phys. und path. Chemie. P. 141.

[b] Ueber das Verhalten der Wundinfektionserreger im Darme. Wiener med. Wochenschrift. 1889. 1–3 Ctblt. f. k. med. 1889. 556.

[c] Journ. of Anat. and Phys. XXI., 415. 1887.

Hueppe[*] has recently shown that when facultative anaerobic germs, as cholera bacillus, are grown in an atmosphere free of oxygen their virulence is greatly increased—*i.e.*, they produce their toxin more energetically and rapidly than under ordinary circumstances, but their susceptibility to the action of external agencies is also increased, so that, in this condition, they are almost infallibly destroyed by the action of the gastric juice. When, however, they are grown for a time in an oxygenated atmosphere, they become more resistant, and may pass uninjured through the stomach and excite their specific fermentation in the intestine. By this discovery is explained why perfectly recent cholera dejections are less virulent than those which have been exposed for some time outside the body. Further, it explains the influence of external circumstances, as the condition of the subsoil water in the spread of the disease, and shows that in estimating the chances which a germ has of passing through the stomach safely we must consider not only the acidity of the gastric juice and the kind of organism, but also the condition of the latter at the time of its entrance into the system. Hueppe proposes as a remedy for cholera salol; a substance which passes through the stomach unchanged, but in the alkaline intestine is split into salicylic acid, which acts directly on the now susceptible anaerobic germs.

This very important question—How far the acidity of the stomach protects us from the entrance of living germs into the lower part of the intestine?—has been studied indirectly. It is known that some of the products of intestinal putrefaction are absorbed from the bowel, and are excreted in the urine, in the case of the aromatic substances, as indol, skatol, phenol, conjugated with sulphuric acid in ethereal combinations. The quantity of these substances in the urine may be taken as a measure of intestinal putrefaction, and we all know the large quantities of indigo and phenol which may be got from the urine in cases of intestinal obstruction, peritonitis, and other conditions, where, owing to retention of matter in the bowel, the putrefactions advanced beyond their due limits. Wasbutzki[a] found in patients suffering from stomach diseases of different kinds, that, where in the stomach HCl is deficient, and intense bacterial fermentation occurs, the proportion of conjugated sulphuric acid in the urine is increased; that in cases of intense yeasty fermentation where HCl is abundant the conjugated sulphuric acid is diminished. In two cases, although HCl was absent, the conjugated sulphuric acid was diminished. Here, however, there was an abundant formation of organic acids, lactic and butyric, in the stomach, and these had the same antifermentative action as that usually exerted by the HCl. Indeed, MacFadyen has found that these acids have a marked effect in destroying bacteria.

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[*] Berl. klin. Wochensch. 1890. 189. März 3.

Kost[b] experimented on men, and found that where with a constant diet alkalies were administered so as to make the urine alkaline, the conjugated sulphuric acid in the urine was constantly increased, which is attributable to the freer entrance of putrefactive germs into the intestine through the neutral or alkaline stomach.

Unfortunately as yet we are not acquainted with any substance in the urine from which we can conclude that pathogenic bacteria are present in the intestine. In a remarkable case of cystinuria, v. Udránzsky[c] and Baumann found in the urine, besides the cystin, constantly for more than a year, penta- and tetra-methylendiamins, which were shown to be identical with the ptomaïns discovered by Brieger, and named by him cadaverin and putrescin. Since Brieger has shown that these bodies are found in certain putrefactions, and in the cultures of certain bacteria, as cholera bacillus and Finkler and Prior's vibrio, attention was directed to the fæces, in which also these ptomaïns were found. Hitherto diamins have been found only in the urine of cases of cystinuria, and do not occur in the stools of healthy patients. Indeed, so far they have been found only in cystinuria and in the semen-smelling discharges of cholera patients. They are probably the products of the metabolism of special bacteria which exist in the intestine of cystin patients. Kost, alluding to this case, anticipates that we shall find in the urine in other abnormal states substances which will enable us to recognise the existence of various pathogenic bacteria in the intestine, and the occurrence of fermentation produced by them.

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[a] Arch. f. Exp. Path. und Pharm. XXVI., 183. Ctblt. f. k. Med. 1889. 893.

[b] Festschrift zur Eröffnung der neuen Allg. Krankenhauses zu Hamburg-Eppendorf. Ctblt. f. k. Med. 1890. 51.

[c] Hoppe's Zeitsch. XIII., 562. See also Stadthagen and Brieger. Berl. klin. Wochenscrift. 1889. No. 16.

But while we must admit that the stomach, by its acidity, does serve an important purpose in guarding from bacteria the lower parts of the digestive tract, I believe there are few who will be ready to allow that this is its main function, or who will not hold this as secondary to the digestive action which it exerts in certain classes of foods.

That the secretions of the stomach are capable of dissolving many alimentary substances has been known since the experiments of Reamur and Stevens, who found that substances enclosed in perforated tubes soon disappeared when the tubes were introduced into the stomach either of animals or of men. That this was a purely chemical solution which could be effected outside the body was shown by Spallanzani, who first made experiments on artificial digestion with the gastric juice expressed from sponges which had been swallowed and again drawn up by attached strings from the stomach.

The entire subject of the chemical processes which are due to the action of the gastric juice has undergone an immense development of late years, and we now know that these are due to the agency of a substance, pepsin, belonging to the class of ferments or enzymes. This pepsin, however, will not act except in the presence of a free acid, and the secretion of the stomach in health is always acid. On the nature of this acid much uncertainty prevailed for a long time, but the fundamental observation of C. Schmidt set the question at rest. He found that, supposing all the bases present to be combined with chlorine, there was still a large excess of HCl, and that this excess required for its neutralisation just that quantity of alkali necessary to neutralise the gastric juice itself. Thus he proved not only that free HCl was present, but that it was the only acid present. No doubt HCl is, except in most exceptional cases, the only acid secreted, but we shall see that in every act of digestion other acids are present whose appearance, disappearance, and relative proportion to the HCl are objects of great importance in the investigation of the digestive act as performed in the human stomach.

Although we speak of the stomach as a single glandular organ, and the gastric juice as a single secretion, yet really it is not so. The structure of the stomach differs in different parts, and so do the secretions. The pyloric part has long been known to differ from the rest, but until 1878 much uncertainty prevailed as to the exact nature of the secretion formed by each part. Heidenhain then isolated successfully the pyloric portion, leaving its blood-vessels and nerves intact. He joined the fundus to the duodenum, and made a sac of the isolated pylorus, attaching its edges to the wound in the abdomen, so that its secretion flowed out and could be collected. This operation had been performed before by Klemensiewicz, but his dog lived only a few days. Heidenhain succeeded in keeping one dog alive for 12 days, when he had to be killed in consequence of stricture of the passage into the intestine. Another dog lived in good health for 10 weeks. The secretion from the pyloric region was alkaline, clear, viscid from presence of much mucus, and contained pepsin in abundance, as shown by its powerful digestive action when made acid by HCl. It also contained the second gastric ferment—namely, rennet—for when added to fresh milk, without any addition of acid, it quickly caused curdling.

Heidenhain next performed the still more difficult operation of isolating a large piece of the fundus of the stomach, and converting it into a sac opening outwards. Of dogs so treated one lived 14 days, another a month. The secretion of the fundus was a clear, colourless, limpid fluid containing very little mucus. It contained solids in smaller, but acid in larger, proportion than had been found in the entire gastric juice (0·45 per cent. against 2·694 per cent.; ash, 0·13–0·35 per cent. against 0·676 per cent.; free HCl, 0·52 per cent. against 0·305 per cent.), and organic matter, chiefly pepsin. Thus pepsin is secreted by all parts of the dog's stomach, but acid only in the fundus. In some animals the stomach is much more complex. I do not speak of the multilocular ruminant stomach; but even in those in whom there is but one cavity we often find a region devoid of glands and lined by a scaly epithelium, and Ellenberger[a] and Hofmeister have recently described six separate regions in the stomach of the pig.

The chemical changes effected by the gastric juice in the different food stuffs have been studied mainly by the method of artificial digestion. There is no difficulty in getting an extract of the mucous membrane of the stomach which shall contain pepsin in greater or less purity, and which, when made suitably acid by HCl, shall dissolve and change, or, as it is said, digest proteid substances. It is only on these proteids that artificial gastric juice will act.

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[a] Arch. f. Phys. 1889. P. 137.

The proteid of a solid is observed, firstly, to swell and then to dissolve. If the action is prolonged, under favourable conditions, the final result is a substance called peptone. This differs in many important respects from the original proteid. It does not precipitate with heat or HNO_3, or with K_4FeCy_6, or NaCl in acid solution. It is not precipitated by neutralisation, or by many metallic salts. It is not precipitated by $(NH_4)_2SO_4$, but if a peptone solution be saturated with this salt and boiled at 110° C. a resinous mass separates. Peptone is completely precipitated by tannin, $KI + HgI_2$, and nearly so by phosphotungstic acid, phosphomolybdic acid, and picric acid. It is also precipitated, but incompletely, by alcohol. The peptone got by acid peptic digestion is known as amphopeptone, and is uninfluenced by further gastric digestion, but when submitted to pancreatic digestion half of it disappears and is transformed into leucin, tyrosin, and other bodies, while the other half remains, giving much the same reactions as before. This unaltered peptone is called antipeptone. Gastric or amphopeptone is thus supposed to be a mixture of antipeptone, which resists further change by the pancreas, and hemipeptone, which by the pancreas is further broken up. It is probable that peptone has never yet been got perfectly pure. Kühne and Chittenden[a] have prepared ampho- and antipeptone by an elaborate method, but the differences in the elementary composition found in the different analyses suggest that these bodies are mixed with other unknown substances. As found, they were, when dried, very hygroscopic powders, hissing and giving off vapour when moistened, like phosphoric anhydride. They had a disgusting, bitter taste, and rotated the plane of polarisation to the left. While amphopeptone gave Millon's reaction, antipeptone did not.[b] As this reaction is known to depend on the presence of the phenol group of aromatic substances, which includes tyrosin, aromatic oxyacids, phenol, cressol, we must conclude that between the two peptones, which resemble each other in so many respects, this great difference obtains—that the aromatic phenol group is absent in anti- but present in hemipeptone. Corresponding to this, where antipeptone was decomposed by boiling with H_2SO_4, little or no tyrosin could be got.

While solutions of albumin filter and dialyse with great slowness and difficulty, peptone solutions filter freely and dialyse with comparative rapidity. This would point to a diminution in the size of the molecule. Whether this is due to a polymerisation or to a hydrolytic splitting of the proteid molecule is a matter of uncertainty. The results of elementary analysis do not settle the question. Whatever the change consists in, it is evidently one which can easily be gone back on. We know that during digestion in the living body peptone is formed in considerable quantity, while no peptone can be found in the blood; hence, during the act of absorption, a reconversion of peptone into albumin must be effected. Outside the body Henniger, by action of acetic anhydride, and Hofmeister, by action of an elevated temperature on peptone, have converted this into a body giving proteid reactions, while, more recently, Michailov[a] has found that concentrated alkaline peptone solutions, by merely standing at body temperature, are changed partly into globulins, partly into albumins.

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[a] Zeit. f. Biol. XXII., 423. 1886.

[b] Salkowski. Zeitschrift f. physiolog. Chemie. XII., 215. 1888.

But between the original proteid and the ultimate amphopeptone are many intermediate stages, and there is much probability that the matters are absorbed when they have reached these stages without going any further. These intermediate products are, therefore, of interest, not only chemically but physiologically, and they have been made the subject of extensive researches in recent years.

As first product, is a substance which is completely precipitated by neutralisation. This is closely related to, if not absolutely identical with acid albumin, which is got, although more slowly, by action of acid alone, without aid of pepsin. Between this and peptone are a group of bodies known as albumoses, for our knowlege of which we are largely indebted to Kühne and his school.

These bodies can be got as follows:—If all the coagulable albumin is separated by heat, and the acid albumin by neutralisation, there remain only the albumoses and peptones. Ammonium sulphate does not precipitate the latter, while by it the albumoses are completely precipitated in a soluble form. It would occupy too much time to enter at any length into the history of these bodies, of which there are several kinds. I must confine myself to only a few statements. From the artificial digestion of fibrin Kühne and Chittenden[b] have got four albumoses:—1. Proto-albumose, precipitable by saturation with NaCl, and soluble in cold and hot water. 2. Hetero-albumose, precipitable by NaCl to saturation, soluble in dilute saline solution, but insoluble in water, hot or cold. 3. Dysalbumose, precipitable by saturated NaCl, but insoluble in dilute saline solution and in water; and, 4. Deutero-albumose, not precipitated by NaCl, but by NaCl + acetic acid. These reactions admit of a ready separation of these bodies.

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[a] Hermann and Schwalbe. Jahresbericht. 1886. 257.

[b] Zeitsch. f. Biol. XX., 11.

Albumoses of similar kind have been got from myosin[a] (myosinoses); from globulin (globuloses);[b] from egg albumin;[c] from casein (caseoses);[d] from elastin[e] (elastoses).

Albumoses are bodies very commonly found in both the animal and vegetable kingdoms. They are of interest, because, among other reasons, they have often extremely poisonous properties. It has long been known that so-called peptone injected into the blood-vessels of dogs and cats causes extreme depression and lowering of blood-pressure, with tendency to hæmorrhage, and often death, and that the blood loses temporarily its power of coagulation. Kühne and Chittenden found that the pure peptones had not this effect; and Pollitzer[f] found that antipeptone was usually without effect, while, in decreasing degree, hetero-albumose, proto-albumose, and amphopeptone caused narcosis, fall of blood-pressure, and loss of coagulability of the blood in dogs. From the recent researches of Brieger and Fraenkel[g] in the poisonous products of the metabolism of the diphtheria bacillus and other pathogenic micro-organisms, it appears that these are of an albuminous nature, probably closely allied to albumoses; while the investigations of Weir Mitchell and Reichert[h] and those of Wolfenden[i] show that in snake venom the poisonous principle is not an alkaloid, but an albuminous substance of a globulin and peptone-like nature, which will possibly turn out to be an albumose. Martin and Wolfenden[j] have found that the jequirity poison is not, as was at one time supposed, of a bacterial nature, but is due to a globulin and an albumose, both of which have been isolated, and their action studied.

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[a] Kühne and Chittenden. Ibid. XXV., 358.

[b] Kühne and Chittenden. XXII., 409.

[c] Chittenden and Bolton. Studies from Laboratory of Physiol. Chemistry of Yale University. II., 90.

[d] Thierfelden. Hoppe's Zeitsch. X., 577. Chittenden and Painter. Yale Univ. II., 156.

[e] Chittenden and Hart. Zeitsch. f. Biol. XXV., 368.

[f] Journ. of Physiology. VII., 283.

[g] Berl. klin. Woch. 1890. 242-268.

[h] Researches upon the Venoms of Poisonous Serpents. 1886.

[i] Journ. of Physiology. VII., 327.

[j] Proceedings of Royal Soc. Vol. XLVI., pages 94 and 100.

Before proceeding to the recent additions to our knowledge of the chemical processes which take place in the human stomach, and the means by which they have been arrived at, a short account may be given of some of the more interesting facts which have been ascertained in the case of animals.

Schmidt-Mülheim[a] found in dogs fed on meat that digestion is mainly effected in the stomach; that the greater part of the proteid is converted into peptone; so that at all stages of digestion the peptone is to the simply dissolved albumin as 2 is to 3 about. Further, not only is the proportion of these bodies to one another constant, but the absolute quantities of each in the stomach is constant, showing that as fast as the proteid is digested or dissolved it is either absorbed or passed on into the intestine. The remarkable dryness of the contents of the stomach is noteworthy, so that in the first six hours it was not coherent, but fell to pieces in a crumbling state.

In contrast to the carnivorous dog we may take the herbivorous horse. In this animal the stomach is remarkably small, having a capacity of only 15–18 litres. "When a horse eats five kilos of hay, representing one-half its daily ration, requiring two hours for its consumption, and impregnates it with twenty litres of saliva, the mass would occupy a space of 28–30 cubic decimetres (litres). As the stomach is functionally most active when only two-thirds distended—that is, while containing about ten litres, the stomach must, therefore, fill and empty itself two or three times during one meal."[b] Stomach digestion is thus reduced to a very short process, and digestion is largely effected in the capacious and complicated intestine. Nevertheless, Goldschmidt[c] has shown that even in the horse the stomach is, considering its size, much more active than the intestine. In the former 55 per cent. proteids and 40 per cent. non-nitrogenous matters are digested, while in intestine only 75 per cent. proteid and 65 per cent. non-nitrogenous matters are digested. Ellenberger and Hofmeister[d] find in the horse that in the first stage of stomach digestion lactic acid only is present, and during this period the transformation of starch into sugar under the influence of the swallowed saliva (and possibly of an amylolytic ferment furnished by the stomach itself) may still go on. Later HCl appears and increases until, when it has reached 0·03–0·04 per cent., the digestion of starch is no longer possible. This is generally true for herbivoræ and omnivoræ, including, as we shall subsequently see, man; but in carnivoræ, although at early stages HCl is present only in very small quantity, and not to be detected by ordinary tests, yet there is no lactic acid stage.[a] Ellenberger and Hofmeister,[b] too, find in pigs fed on pure meat diet that there is little organic acid in the stomach contents, while on starchy diet these acids are abundant.

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[a] Archiv. f. (Anatomie) und Physiologie. 1879. 39.

[b] R. Mead-Smith. Physiology of Domestic Animals. 369.

[c] Zeitschrift f. phys. Chemie. XI., 286.

[d] Fortschritte d. Medicin. 1887. 103.

Goldschmidt,[c] however, finds that the process is more complicated than this simple division into two stages would indicate. There is, first, a pure amylolytic stage lasting about an hour, in which, in all parts of the stomach, starch is converted into sugar and lactic acid. Secondly, an amylo-proteolytic stage, in which amylolysis occurs chiefly, and in all parts, but also proteolysis everywhere, but specially in the fundus part of the proper secreting stomach; this stage lasts up to about the seventh hour. Thirdly, there is a stage of partial, or local, digestion, in which, in the middle region of the stomach—that is, those parts where the proper fundus glands exist, proteolysis only occurs, while elsewhere starch is digested. This stage usually lasts until the next meal, but is sometimes followed by a fourth stage, in which, from abundance of HCl in all parts of the stomach, amylolysis is no longer possible, and proteolysis only occurs. These stages pass gradually into one another, and their distinctness is not always evident. The contents of the stomach are very dry, and fresh food pushes before it what was already in the stomach without becoming mixed with it. The kind of digestion which any particular particle of food undergoes depends very much on the course it takes between the œsophagus and the pylorus. From the former the food diverges in a fan-like manner. These parts which in their passage are most exposed to the action of the fundus, where only HCl is secreted, undergo most proteolytic changes; elsewhere amylolysis preponderates.

Among omnivoræ important observations have been made in the digestion of the pig.[d] In this animal the stomach consists, as said, of several regions differing from one another in structure. Near the entrance of the œsophagus is one devoid of glands and secreting nothing. The diverticulum from the left extremity and a region corresponding to the left half of the great curvature yield an alkaline secretion containing no pepsin, but a diastatic ferment. The remainder of the great curvature has true fundus glands, and secretes HCl and pepsin and rennet, while the lesser curvature and pylorus yield a neutral secretion containing no acid, very little pepsin, and much mucus. In this animal also the contents of the stomach are very dry, and mixture takes place to only a very limited extent. Digestion runs in stages, at first one in which lactic acid only is present, and in which everywhere amylolysis, without proteolysis, takes place. Gradually the fundus portion secretes HCl and pepsin; and here proteolysis only occurs, while in the cardiac portion amylolysis still takes place, and in the pyloric portion both starch and proteid are undergoing digestion. Finally a stage of almost pure proteolysis—but even to the last some amylolysis takes place at the cardiac end. With a diet of potatoes the results are quite analogous to those described above, which were obtained on a diet of oats. As stated above, in pigs the lactic acid stage is slight or absent on a purely flesh diet.

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[a] Cahn. Fortschritte d. Medicin. 1887. 269. Zeitsch. f. klin. Med. XII.

[b] Arch. f. (Anat.) und Physiologie. 1890. 280.

[c] Zeitschrift f. phys. Chemie. X., 361.

[d] Ellenberger and Hofmeister. Fortschritte der Medicin, 1886, p. 556, and Arch. f. (Anat. und) Physiologie, 1889, 187.

These differences in the powers of stomach digestion in the different species of animals make it impossible to conclude from physiological experiment as to the details of the process as carried on in the human body. Hence it was of the greatest importance that observations should be made on men, and having got an accurate knowledge of the normal course of digestion, that a study should be made of the variations which occur in the chemistry of digestion in the abnormal conditions of the human stomach. Until recently our information on this point was mainly derived from the cases of gastric fistula, more particularly from that of the famous Alexis St. Martin, on whom Dr. Beaumont's classical observations were made. It is unnecessary to refer further to these observations, since they are in their main features familiar to everyone. But of late years a method has come more and more into use, which has thrown a flood of light on the normal and abnormal chemistry of the stomach, which is of daily practice abroad, but which is as yet far too little employed among us. The main object of this lecture is to bring this method prominently under notice and to recount the most important results which have been arrived at by its means.

Considering how readily accessible the stomach is, it is strange that it is only recently the process of digestion has been studied by removal of the contents of the organ at varying periods after eating and examination of the matters thus withdrawn. By this means the characters of the secretion and the effects produced by its action on the different kinds of food stuffs can be determined with greater certainty than in any other way, and a completely objective and scientific knowledge can be obtained of the disturbed function of the organ, contrasting with the obscurity and uncertainty of the information derivable from symptoms for the most part of doubtful import.

It has been objected that the passage of a tube into the stomach is a disgusting procedure, and would not be submitted to by patients. The disgustingness of a medical or surgical method of treatment is entirely a matter of conventionality. To my mind the passage of an œsophageal tube is less disgusting than the administration of an enema, and infinitely less disgusting than a rectal or vaginal examination. When patients get used to hearing of it they will not think of it as strange or disgusting, and in cases where it is practised the relief obtained is so great that patients are seldom unwilling to submit themselves to a repetition of the operation as often as is necessary.

The procedure is very simple. A soft Indiarubber tube is passed without difficulty into the stomach.[a] If the patient then makes a forcing movement with the abdominal muscles, the contents of the stomach are expressed through the tube, and can be collected for examination. If it is desirable to wash out the contents of the stomach completely a longer tube is used, water is poured in from a height by a funnel until a sufficient quantity has been introduced, then the funnel is lowered and the contents run off by a siphon action, which if it does not start of itself can be readily set going by a contraction of the abdominal muscles. I am aware that the practice of washing out the stomach in cases of gastric enlargement with fermentation of the contents is largely employed here, although by no means so largely as it deserves; but the method of diagnosticating stomach diseases by a study of its contents removed for this purpose is, I believe, not at all employed. It is this proceeding which I would now advocate, as having already introduced a new era into the history of gastric pathology and therapeutics and as promising still greater results in the future.

[a] Ewald. Irish Hospital Gazette. 1874. 255.

I shall first briefly indicate the principal results which have been got by a study of normal digestion, and then notice what has been found in abnormal conditions.

The question would be greatly complicated if it was attempted to study the digestion of one of our usual complex meals, composed as it is of all kinds of the most heterogeneous matters.

It is necessary to take a simpler object for examination. The first systematic observations of this kind were made by Ewald and Boas,[a] who had at their disposal female patients whose digestion was good and nutrition perfect, but who had the habit of vomiting at variable times after meals, either voluntarily or when they drank some water. With the vomited matters or the contents of the stomach removed by expression the observations were made. The patients received meals composed either of white bread and water, of scraped meat, of egg albumin, potatoes, or of these substances combined. The main results arrived at were these:—

During fasting the stomach is found free from remains of food. Water introduced and withdrawn is neutral, and contained neither HCl, nor lactic acid, nor peptone.

Very shortly after a meal of 60 grams of white bread (even within 10 minutes) fermentation lactic acid is present, and increases up to 30–40 minutes, when HCl appears. Further on, HCl increases, while, *pari passu*, lactic acid diminishes, and after about an hour HCl only is present. The same is true with potatoes.

With scraped meat lactic acid is found also at early stages, but now it is not fermentation or æthylidene lactic acid, but æthylene or paralactic acid. This acid occurs up to 50 minutes after food. From 60–90 minutes it is found together with HCl, while this acid only is found after 100–120 minutes. The course is similar, but more rapid, with fish diet. In all these cases the lactic acid is not secreted by the stomach, but derived from the food—the æthylidene lactic acid by the fermentation of the carbohydrates, while the sarcolactic acid is extracted from the meat. That this is so is shown by the absence of lactic acid at all stages of digestion of egg albumin, which contains no lactic acid, and cannot furnish it by fermentation. When bread, meat, and albumin were given together, the same three stages were observed. That HCl promotes the disappearance of free lactic acid from the stomach is probable from the above observations, and was proved by experiments specially directed to this point. This is due apparently to the more ready decomposition of alkaline chlorides by lactic acid when some free HCl is present, and also possibly to a more rapid removal of lactic acid from the stomach, while its further formation by fermentation is prevented by the presence of HCl. That lactic acid, however, is not necessary for the formation of HCl is shown by the presence of the latter in digestion of egg albumin, when lactic acid is absent at all stages. Since peptone is present even in the first stage of digestion, some pepsin must then be secreted. The quantity is, however, very small, and it is only coincidently with the appearance of HCl that the pepsin becomes abundant. Everything which slows digestion delays the appearance of HCl, and prolongs the lactic acid stage. This was found to be the case during menstruation, in subacute and chronic gastric catarrh, and markedly so when fat was added to the food. Hence we have in the undue prolongation of the first stage of digestion an objective measure of the degree of dyspeptic conditions.

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[a] Virchow's Arch. 101–325. See, also, Verhandl. d. Berliner physiologischen Gesellschaft. 1884–5. Arch. (Anat.) und Physiologie. 1885. 346.

It is obviously necessary, in order that the digestive power of different stomachs may be compared, that the substances submitted to digestion should be always similar in quantity and quality, and further, in order to facilitate the examination, it is advantageous that the food given should, while containing representations of the different food stuffs, be of as simple composition as possible. Of these test-meals two have been chiefly employed—the *Probefrühstück*, recommended by Ewald and Boas; and the *Probemittagbrod*, used by Leube and Riegel. The former consists of 35 grams of white bread and one-third litre of water or weak tea without milk or sugar. The examination is made one hour after eating. The Mittagbrod is more like an ordinary meal, consisting of 300–400 grams of soup, 125 grams of beefsteak, with 50 grams of white bread, and sometimes potatoes. This meal requiring much longer digestion, the contents of the stomach are not drawn off until 3–4 hours after eating.

Some discussion has arisen as to the respective merits of these test-meals. The question has been examined by Einhorn,[a] who administered both to the same persons on the same day, and compared the results. He experimented both on persons with disordered digestions and those whose stomach were healthy. He concludes strongly in favour of the simpler Frühstück. He finds that the quantity of acid salts introduced with the meat greatly complicates the determination of the HCl; that, while an hour after the Frühstück lactic acid is usually absent and HCl present, 3–4 hours after the Mittagbrod lactic acid is usually present and free HCl is variable, and often absent, being all combined with albuminates or otherwise. In the long time which elapses between eating and the examination in the Mittagbrod, the fluid part of the food is often absorbed to such a degree as to make the removal of the contents of the stomach difficult and to render it impossible to obtain enough fluid for the application of the necessary tests. Besides, as pointed out by Ewald,[a] the matters withdrawn after the Frühstück are much less offensive than those after the Mittagbrod. The bread contains all the food stuffs—proteids, fat, carbohydrates, salts, and extractives. It is, of course, not a very severe test of the powers of the stomach, but it has been found to work well and a great part of our knowledge has been got by its means.

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[a] Berl. klin. Wochensch. 1888. No. 32, 647.

The course of the normal digestion of such a meal shows the following stages in acidity:—Within 10 minutes the filtered contents of the stomach are acid, either from free acid, acid salts, or both. Free acid, if present, is lactic acid. It is probable that from the first HCl is present, but its presence is concealed in consequence of its being combined, or because of the presence of salts, which interfere with the delicacy of the tests. Up to 30–40 minutes lactic acid only is discoverable by the chemical tests. After this first stage is a second, in which HCl appears and can be found in increasing quantity, together with lactic acid. With the small meal HCl increases to a maximum of 1·5–2·0 per thousand, but with a more abundant meal it may rise to 2–3·3 per thousand. After about an hour HCl alone is found. Some lactic acid may still be present, but unless in pathological amount is not discoverable by tests.

In an examination of the contents of the stomach got by vomiting or removal by the tube we have to consider—firstly, the acids; secondly, the ferments; and thirdly, the changes effected in the food during its stay in the stomach.

The gastric contents are usually acid both in health and disease. The presence of an acid reaction should be due to free acid, but is often due largely or altogether to acid salts. We have, therefore, to determine first whether free acid is present, and then to investigate the nature of the acid. The normal acid of the gastric juice is HCl, but, as we have seen, it is usual at certain stages of digestion to find lactic acid either alone or in company with HCl. It is by no means rare to find other organic acids, chiefly acetic and butyric acid, which owe their origin to abnormal fermentation.

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[a] Klinik der Verdauungskrankheiten. 2te Auflage. II., 18.

A really accurate scientific examination of the acids is accompanied by some difficulty, and can be carried out only by one versed in chemical manipulation and with the resources of a chemical laboratory. The principle consists in separating the volatile acids by distillation, removing the lactic acid from the residue by repeated extraction with ether, and finally titrating what is left for HCl. In order not to overestimate this by counting in the acid salts, it has been proposed[a] to precipitate the free HCl by freshly-prepared cinchonin, to extract with chloroform the compound of HCl and cinchonin, and then titrate the former by silver.

To separate the HCl from the organic acids, and to estimate it quantitatively, Sjöqvist[b] adds $BaCO_3$, evaporates to dryness, and carbonises the dry mass. By this means the baryta salts of the organic acids are changed to carbonates. The mass is then extracted with water. This leaves the insoluble $BaCO_3$, but extracts the $BaCl_2$ from the original HCl. In this the Cl can be determined by titration with potassium bichromate.

V. Jaksch[c] modifies and simplifies this process by estimating not the Cl but Ba in the $BaCl_2$ gravimetrically as barium sulphate.

All these methods require time and chemical skill which are not possessed by the average medical man, and consequently, if a chemical analysis of the contents of the stomach is to be used for clinical purposes, some simpler methods of examination must be found. Several of these have been introduced of late years—which, although they cannot pretend to scientific accuracy, are, nevertheless, of sufficient delicacy, and, if carefully employed, are sufficiently free from fallacy to justify their use; and it cannot be denied that by their aid our knowledge of the physiology and pathology of stomach digestion has been considerably advanced.

[a] Cahn and v. Mering. Deutches Archiv. f. klin. Med. 1886. Ctblt. f. klin. Med. 1887-9.

[b] Zeitsch. f. Phys. Chem. XIII., 1.

[c] Sitzungsberichte der Kaiser. Acad. d. Wissenschaften zu Wien. Abtheilung III., XCVIII., 211.

These are mostly colour tests. It would take too much time to describe them all, and this is the more unnecessary as a very full description of them is given in the recently translated work of v. Jaksch on medical diagnosis.[a] I shall merely mention those which I have found most useful, and whose employment will usually suffice in practice.

In order to determine whether the acid reaction is due to free acid or acid salts, tropæolin (00) or Congo-red may be employed. The former becomes brown, the latter blue if free acid be present, while these reactions are not produced by acid salts.

In order to show whether the free acid is HCl or lactic acid, we use methyl or gentian violet, which is turned blue by HCl, but is not changed by lactic acid except this acid is present in larger quantity than is usually the case. Still more delicate is the phloroglucin-vanillin test of Günzburg.[b] This test will show HCl in dilution of 0·05 per thousand (1 in 20,000), while methyl violet fails below 0·24 per thousand (1 in 4,000).[c]

In order to show the presence of lactic acid, Uffelmann's iron carbolic acid test gives good results. The fallacies arising from the sugar and phosphates may be avoided by testing, not the original filtrate of the stomach contents, but the residue of the ether extract of this. This will detect 0·1 per thousand lactic acid.

Butyric and acetic acid are best detected by their smell.

The total acidity of the stomach contents is determined by titration with dilute ($\frac{1}{10}$ normal soda solution). Each cc. of this solution is equivalent to 0·003646 HCl. One hour after the Probefrühstück 10 cc. gastric contents should require from 4–6·5 cc. of the alkaline solution, which equals 0·146–0·237 per cent. Values above or below these limits are pathological (Ewald).

For pepsin we have no test except its power of digesting proteid. Some of the fluid to be examined is placed in a test tube, and small pieces of boiled fibrin or, still better, slices of boiled egg albumin are added, and the whole is placed in the water bath regulated at 100° F. If the fluid is neutral or very feebly acid some dilute HCl should be added. It is well to act on these portions:—1. The original filtrate; 2. The same, with addition of an equal quantity of dilute HCl; 3. The same as 2, but boiled for a few seconds.

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[a] A Text-book of Clinical Diagnosis. By R. v. Jaksch. Translated by J. Cagney.

[b] Ctbt. für klin. Med. 1887. 737.

[c] Ewald. Verdauungskrankheiten. 37.

In this last no solution of proteid should occur. The quantity of the fluid should be the same in the three tests, and to each the same quantity of proteid should be added.

The other ferment or the rennet can detect only by its power of coagulating milk in neutral solution. Some interesting and valuable observations have been made recently on the occurrence of this ferment. Schumburg[a] examined the stomachs of human corpses, and got variable results, sometimes positive, sometimes negative. Among the former was a six months' fœtus. In the stomach of a calf immediately after death abundant rennet was found, while in the contents of a dog's stomach, vomited after apomorphin, only feeble results were obtained. The contents of the living human stomach were got by swallowing sponges. Out of ten experiments made in this way only one yielded positive results. Boas[b] has studied the contents of the human stomach withdrawn during life, in both healthy and diseased persons. He finds that sufficient care has not been taken to distinguish between the perfectly formed rennet ferment and its zymogen. Whenever free HCl is present, either during digestion or in case of hypersecretion during fasting, there rennet is found. The zymogen is present also during the entire period of digestion, and can be shown by its greater resistance to alkalis. Thus the contents of the stomach is made alkaline with Na_2CO_3. This destroys the ferment, but not the zymogen. If the fluid be then made acid and finally neutralised, or if $CaCl_2$ or other lime salts be added, the zymogen is converted into the ferment and milk is coagulated. The zymogen is also much more resistant to elevation of temperature than the ferment, which is destroyed at 70° C. When acid is absent ferment is also absent, but the zymogen is present. The same is true of pepsin and its zymogen. Thus an important function of the acid of the gastric juice is to convert the zymogens which are secreted by the glands into the active ferments.

Klemperer,[c] too, arrives at very similar conclusions. The ferment he finds present only when acid is present. The zymogen is always to be found. Hence the examination for rennet has no diagnostic importance, since its presence or absence is only an additional proof of the presence or absence of acid, while the absence of zymogen would point to serious impairment in the functions of the stomach glands.

[a] Virchow's Archiv. XCVII., 260.

[b] Zeit. f. klin. Med. XIV., 249.

[c] Ibid. XIV., 280.

These researches[a] give new ideas as to the use of adding lime water or other lime salts to milk in cases of difficult digestion. The commonly received view is that the lime prevents or modifies the coagulation. But it would appear that its use is to favour coagulation, and so to prevent the undigested milk from passing too rapidly into the intestines.

I shall now notice some of the more important diseases in which the chemistry of stomach digestion has been investigated, and in which this investigation has increased our knowledge.

I. CANCER.

Of these one of the most important is cancer of the stomach. It is unnecessary to remark on the great difficulties which frequently attend the recognition of this affection, and it must be evident that now more than ever an early diagnosis is desirable, since, if surgical interference is ever to succeed, it must be when it is undertaken at the commencement of the disease.

It is now many years since Van der Velden announced that in cancer of the stomach free hydrochloric acid is absent in the contents of this organ. A similar observation was made, however, many years previously by Dr. Golding Bird, and has been rescued from oblivion by Ewald.[b] The importance of the subject is shown by the large number of works which have been devoted to it in recent times. Among the most important of these are the reports of Professor Riegel, of Giessen, on the cases of stomach diseases treated in his Klinik during the years 1885 and 1886. These cases were observed in the most careful manner. The stomach contents were repeatedly examined for HCl and inorganic acids, and in all cases their power of digesting albumin was tested. In the first report[c] 15 cases of cancer of the stomach are tabulated. In 13 there was dilatation of the stomach. In 2 this could not be detected. In 5 cases the diagnosis was confirmed by autopsy. In the others the diagnosis was made by the usual symptoms—as tumour, ectasia, hæmatemesis, cachexia, &c.; 231 observations were made. In none of the fatal cases was HCl ever found. In

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[a] Rennet stands in a certain relation to free HCl, but can be present in the absence of this, the zymogen being converted by organic acids. The zymogen may, in the absence of rennet, be present or absent. Pepsin, or more correctly pepsinogen, is always present, except in cases of atrophy of the mucosa. Johannessen. Zeitsch. f. klin. Med. XVII., 334.

[b] Klinik der Verdauungskrankheiten. II., 187.

[c] Zeitsch. f. klin. Med. XI., 167.

3 of the others it was present at first, but disappeared in the later stages. Riegel thinks that the constant, or almost constant, absence of free HCl, supposing that the examination is rightly made, speaks strongly for the diagnosis of cancer; the presence of free HCl, supposing the examinations are sufficiently often repeated, speaks equally or more strongly against cancer. Although for seven years he has examined every case he has never met a case of carcinoma in which free HCl was constantly found, and in which normal digestive power existed. He quotes cases in which, in absence of other symptoms, and in young persons, the diagnosis of cancer was made solely on the constant absence of HCl, and cases in which the general symptoms pointed strongly to cancer, and yet from the presence of HCl the contrary diagnosis was made, and in both instances the result showed the justice of the opinion arrived at.

In the second report[a] we have a record of 306 observations of the gastric contents of 16 cases of cancer. Five cases were fatal. In no single one of these was free HCl found, and in not one of 154 artificial digestion experiments was albumin digested. Of the remaining 11 cases, 8 never had any free HCl, and manifested no digestive power, while the remaining 3 at first showed traces of free acid and of peptic power, but subsequently lost both.

Jaworski and Gluziński[b] also found no free HCl in the examination of their cases of carcinoma of the stomach.

These observations were made by the colour tests. By the more accurately scientific, but by no means unobjectionable, methods of Cahn and v. Mering, HCl is found in cases of cancer. The acid residue, however, left after removal of the volatile acids, and of the lactic acid does not give the colour tests, and, above all, does not digest albumin. Hence, the HCl is not free, but combined—probably largely—with proteid substance or peptone. If to the gastric juice of a cancerous patient HCl be added, it to a great extent disappears as free acid, while the volatile acids and lactic acids increase.[c] This points to the deficiency of HCl for the complete saturation of the ingesta.

Rare cases of cancer, however, occur in which free HCl is present. Cahn reports one,[d] and in the discussion on his paper others were mentioned. Ewald[a] details a case where, until shortly before death, free HCl was present, although it disappeared before the operation was performed, in consequence of which the patient died. In some of these cases the cancer seems to have been secondary to an ulcer, in which condition, as we shall subsequently see, the free acid is usually increased.

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[a] Zeitsch. f. klin. Med. XII., 426.

[b] Ibid. XI., 50.

[c] Von Noorden. Bericht ü. d. Verhandl. d. VI. Kongress f. innere Medicin. 65.

[d] Bericht ü. d. Verhandl. d. VI. Kongress f. innere Medicin. 62.

The question then arises—What is the connection between cancer and the disappearance of HCl from the gastric juice? On this subject two views are held. According to the one, supported by Ewald, Stiénon, Rosenheim, &c., the chemical insufficiency is due to an inflammatory or atrophic condition of the entire mucous membrane. According to Ewald[b] the condition is one of catarrhal inflammation; Stiénon[c] has found in 4 out of 8 cases atrophy of the glands; and Rosenheim[d] found in 14 out of 16 cases of cancer inflammatory degeneration of the mucous membrane, commencing as catarrhal inflammation, advancing to interstitial change and atrophy.

On the other hand, Riegel doubts the general validity of this explanation, and thinks that the absence of the acid is due not so much to its non-secretion as to its being combined by some substance arising from the cancer. This view is supported by a case in which the stomach was free from disease, but the cancer was situated at the commencement of the duodenum, and nevertheless there was an absence of free acid and of peptic potency. Rosenbach,[e] who thinks very little of the value of an examination for free acid in the diagnosis of carcinoma, holds that the occasional absence of acid occurs in those cases in which the cancer is ulcerated and furnishes from its discharging surface albuminous matters which combine with and conceal the acid.

More important than those cases of cancer in which HCl. is present are those cases in which the acid is absent and yet the disease is not carcinoma. That such cases occur is admitted by everyone, but they are seldom of a kind which can be confounded with cancer. Among the more important conditions in which this occurs may be mentioned four—extensive amyloid disease of the stomach; severe mucous catarrh, leading to atrophy, neurasthenia, great anæmia; certain cases of nervous dyspepsia; advanced cases of renal disease and cancer of the œsophagus.

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[a] Klinik. II., 191.

[b] Ibid. 194.

[c] Ewald. Ibid. 194.

[d] Berl. klin. Wochenschrift. 1888. Nos. 51, 52. 1021, 1048.

[e] Ctblt. f. klin. Med. 1887. 585.

Riegel[a] has, however, in cases of cancer of the œsophagus, found the secretion normal, while he records cases of permanent regurgitation of bile into the stomach, and a case of true gastritis[b] from drinking sulphuric acid in which HCl. was permanently absent.

In cancer the organic acids are usually abundant in the contents of the stomach, and, except in very rare cases, pepsin is present, although sometimes in diminished quantity. The anatomical changes found in the mucous membrane are least marked near the pylorus, and from the glands of this part the pepsin may be furnished, even while the oxyntic glands of the fundus may be out of action. As is known, pepsin is usually to be found in the urine, and its source is believed to be the stomach, from which it is absorbed. In some cases of cancer of the stomach pepsin has been absent from the urine;[c] hence we may assume that it has not been formed by the peptic glands.

As regards the presence of rennet, in three cases of cancer of the stomach Boas found no rennet in the contents withdrawn from the stomach. In two of these, however, milk was coagulated when swallowed. He regards[d] the absence of rennet as not typical for carcinoma, but merely as an expression of the general degeneration of the mucous membrane which occurs in this disease, and to which he attributes also the absence of HCl.

On a review of the entire subject, while it must be admitted that rare cases of cancer occur in which free HCl. is present, and that still more frequently HCl. is absent in cases which are not cancer, so that this sign is no more than others absolutely pathognomonic, yet it is one of great importance, and in all suspicious cases frequent chemical examination of the contents of the stomach should never be omitted.

II. CHRONIC ULCER.

In great contrast to cancer stands another very common disease of the stomach—namely, chronic ulcer. Of this condition Riegel gives in his first report 8 cases, with 21 observations; in his second, 42 cases with 382 analysis. In all of these acid was present, and in most cases in considerably larger quantity than in health—

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[a] Zeitsch. f. klin. Med. XII., 434.

[b] Ibid. XI., 187-198.

[c] Leo. Pflüger's Arch. XXXVII., 228.

[d] Zeitsch. f. klin. Med. XIV., 278.

0·4–0·5 per cent. against 0·15–0·2 per cent. Van der Velden[a] also has found hyperacidity—0·26–0·47–0·42 per cent. in three cases respectively. The digestive power of such gastric juice is greater than normal. Organic acids are absent, or present in small quantity.

Other observers have, however, not found the hyperacidity of the gastric juice so constant a symptom in cases of ulcer. Gerhardt[b] got in 7 out of 24 cases negative results by testing for acids with colour tests, and Rosenheim, who examined 8 undoubted cases by the method of Cahn and v. Mering, found in 2 hyperacidity, 4 times normal amount of acid, and twice diminished acid. Ewald, too, adduces evidence against the universality of the rule of Riegel, but admits that the want of hyperacidity is the exception. On the part of the most experienced physicians a fear is entertained of the use of the tube in gastric ulcer. Some cases are recorded of hæmorrhage, and even perforation, following its employment.[c]

Hyperacidity, so frequently associated with gastric ulcer, to the occurrence of which it is a strong predisponent, is apt to pass into hypersecretion, a condition in which, even during fasting, an acid fluid, having all the characters of gastric juice, is secreted in such quantity that 300 to 500 cc. may be drawn off. The fasting secretion may be of the degree of acidity of normal gastric juice, while that secreted during digestion is abnormally acid.[d] Such a state of hypersecretion may occur as an acute and transitory affection principally in nervous persons. Its occurrence as a chronic condition, although mentioned by several older writers, chiefly English, has only recently attracted very much attention. Riegel,[e] in his second report, records 686 analysis of the gastric contents of 18 such cases. In these the digestion of albuminous food is rapid and complete, while the digestion of starchy food does not take place owing to the high acidity. This retention of matters in the stomach leads usually to dilatation.

In these cases matters lodge in the stomach owing to deficient absorption and impairment of the motor power of the stomach, and these retained matters keep up the irritation on which the abnormal secretion depends.[f]

It must not be supposed, however, that in all cases of acidity, whether with or without hypersecretion, the absorption is defective and movements sluggish. On the contrary, the absorption as tested by iodide of potassium has been found in such cases abnormally rapid, and Van der Velden[a] has found in healthy persons that this drug appeared more rapidly in the saliva if acid were swallowed than if merely water were drunk. In many cases of hypersecretion and acidity increased peristalsis occurs; that, nevertheless, matters tend to lodge abnormally long in the stomach is due to a simultaneous non-activity of the pylorus leading to spasmodic closure.[b]

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[a] Ewald. Klinik. 231.

[b] Volkmann's Samml. K. Vorträge. 280, 10.

[c] Riegel. Zeitsch. f. klin. Med. XI., 292. Ewald. Klinik. 261.

[d] Riegel. Volkmann's Samml. Klin. Vorträge. No. 289, p. 20.

[e] Zeitsch. f. klin. Med. XII., 437. Also Ibid. XI., 1.

[f] Jaworski and Gluziński. Zeitsch. f. klin. Med. XI., 88.

The diagnosis of hypersecretion is to be made with certainty only by an examination of the contents of the stomach, removed during fasting after previous washing out of all remains of food. In many cases, in the morning after the stomach had been washed out the evening before, and no food taken in the interval, considerable quantities of gastric juice are found. In other cases, as in those of Van der Velden, the stomach is empty after the night. The symptoms are ambiguous. The patients have usually complained of stomach distress for a long time. They suffer from pain, often of a spasmodic kind, relieved by eating, particularly albuminous food; heartburn, shown by Reichmann[c] to be due to the entrance of acid matters into the œsophagus; eructations of odourless gas, and sometimes vomiting of intensely acid matter. Increased thirst and large appetite with emaciation sometimes cause a suspicion of diabetes. Whether the disease is ever primary, due to abnormal innervation of the gastric glands, is uncertain. Its connection with gastric ulcer and catarrh has been already noticed. In some cases it has followed an indiscretion in diet,[d] or drinking large quantities of cold water.[e] By suitable treatment great improvement usually results; but a complete cure is rare.

III. CATARRHAL INFLAMMATION.

There is no affection of the stomach so common as inflammation of the mucous membrane. Diphtheritic, or phlegmonous, inflammation is, it is true, rare; but so-called catarrhal inflammation is of the greatest frequency. Although called catarrhal, this cannot be looked on as of the same nature as a catarrhal inflammation of the conjunctiva or respiratory mucous membrane; for the mucous

[a] Loc. cit. P. 11.

[b] Riegel. Volkmann's Samml. Klin. Vorträge. 289, 24.

[c] Berl. klin. Woch. 1884. No. 48. 770.

[d] V. d. Velden. l. c. 2.

[e] Reichmann. Berl. klin. Woch. 1882. 40.

membrane of the stomach is not a mere investing membrane, but a mass of glands whose inevitable involvement in any inflammation gives this a parenchymatous character,[a] where not only the connective tissue and surface epithelium are affected, but also the glandular cells. This inflammation is acute or chronic. It is caused by irritants, generally food or drink unsuitable in quantity or quality, by all causes which lead to chronic hyperæmia of the stomach, and by various conditions of the blood, chiefly those in which poisonous matters are excreted by way of the gastro-intestinal mucous membrane, the most ordinary example of which is to be found in cases of chronic uræmia.

The anatomical changes are hyperæmia and infiltration of the mucosa with round cells, increased formation of mucus, and various forms of degeneration of the epithelial cells of the glands. If the disease goes on, a condition of cirrhosis is induced, in which, with atrophy and cystic degeneration of the glands, an increase of connective tissue takes place, frequently associated with pigmentation, polypus excrescences, or even extensive ulceration.[b]

The general symptoms of gastritis, or, as they are called, acute and chronic dyspepsia, are too well known to need repetition. I shall confine myself to the chemistry of the contents of the stomach. The affection has been divided into simple, mucous, and atrophic inflammation. In the first form the fasting stomach is found to contain scanty remains of food mixed with fluid, containing but little mucus, often mixed with bile and other intestinal contents. After the test meal the acidity is found diminished, ferments scanty, peptonisation takes place more or less in the stomach, and the filtrate digests when acidulated.

In mucous gastritis the chief characteristic is the large quantity of mucus found both in the fasting and digesting stomach. The acidity is slight, and due to organic acids; free HCl is usually absent. The ferments are present only in traces, and albumin is digested only to the stage of albumose. The filtrate digests after acidulation, slowly and imperfectly.

In atrophy there is little or no mucus secreted. During fasting the stomach is usually empty. After eating there is a complete absence of acid and the ferments, and the filtrate, even after addition of acid in sufficient quantity, shows no digestive power.[a]

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[a] Hoffmann, F. A. Vorlasungen ü. allgem. Ther apie. Ewald. Klinik. II., 287 Riegel. Zeitsch. XI., 202.

[b] Ziegler. Handbuch d. Path. Anatomie. II., 512. Benno Lewy describes a case of atrophy which proved fatal by hæmorrhage from one of these ulcerated places. Beiträge z. path. Anat. und Physiologie. Von Ziegler and Nauwerck. I., 218.

In many cases of chronic dyspepsia, heart-burn and symptoms of increased acidity are marked phenomena. These are due, not to increased formation of HCl, but indirectly to its diminution, which allows fermentation to occur, the products of which cause the heart-burn, acid eructations, flatulence, and many of the other symptoms of which the patients complain. It is true that recently a class of affections have been described as acid catarrhal,[b] in which, even in the fasting stomach, HCl is found, and during digestion in abnormally large amount. The digestive power of the stomach is good, but its mechanical functions are impaired. It does not appear clearly in what these cases differ from those of hypersecretion, and an acid catarrh is not admitted by those best qualified to form an opinion on this subject.[c] In many cases the diagnosis between chronic gastric catarrh and other more serious affections, particularly carcinoma and that form of nervous disturbance associated with arrest of secretion, is very difficult, and to be made only by exclusion. The difficulty and uncertainty are so great that Riegel[d] rejects the heading "Catarrh" altogether, and classes his cases, which would usually be placed under this heading, as examples of subacute and chronic dyspepsia. That these cases, however, were of different kinds is shown by the fact that, while in some HCl was absent, in others it was present in normal amount.

Many cases of atrophy of the stomach have been recently described, and the clinical histories and *post-mortem* appearances accurately recorded. The very serious symptoms manifested by these patients, and the apparently inevitable termination of the disease in death, is a sufficient proof that the stomach has some function more important than that of a mere receptacle, or of a disinfector. It is true that cases have been recorded by Ewald and others where patients went on pretty well although there was a constant absence of acid and ferments in the contents of their stomachs. But this satisfactory condition is only temporary; a time comes when the intestine is no longer able to compensate for the loss of the functions of the stomach, and then symptoms arise, often pretty suddenly, which presist with increasing intensity until death[a]—these are gastric pain, loss of appetite, frequent vomiting, profound anæmia—often presenting all the clinical features of progressive pernicious anæmia—extreme feebleness, but often without emaciation. In these cases the diagnosis rests chiefly on an examination of the gastric contents. These are without mucus, the food is after a test meal undigested, there is no hydrochloric acid, and the ferments are absent.

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[a] Above symptoms from Ewald. Klinik. II., 340.

[b] Jaworski and Gluziński. Zeitsch. f. klin. Med. XI., 88.

[c] Ewald. Klinik. II., 316. Riegel. Zeitsch. f. klin. Med. XII., 435.

[d] Zeitsch. f. klin. Med. XI., 281. XII., 441.

Jaworski[b] calls attention to the importance, when examining the digestive power of the stomach contents, of adding acid until the tests show the pressure of *free* acid. He also advises, before concluding as to the absence of ferments, to introduce into the stomach dilute HCl, which is again withdrawn after a time. By this means pepsin and rennet are sometimes got, which by other methods may appear to be absent. The acid excites the glands to secretion, and change the zymogens into the fully formed ferments.

In the case recorded by Litten and Rosengart,[c] remarkable for the youth of the patient, who was only eighteeen years old, this practice was adopted, with the result that while the stomach contents acidulated after removal had no digestive power, those got by the introduction of acid into the stomach did digest albumen, although slowly; rennet was absent under both circumstances. A microscopic examination of the contents of the fasting stomach shows no elements arising from the mucous membrane, but merely granular masses, with bacteria. Jaworski thinks this negative result characteristic of gastric atrophy.

In some cases, besides thinning of the mucous membrane, the other coats of the stomach are atrophied, and the capacity is normal, or somewhat enlarged. In others the external coats are greatly thickened, there is a sort of cirrhosis of the muscularis, and the capacity of the stomach is often considerably reduced. In either case the motor function of the organ must be impaired, and to the supervention of this motor insufficiency the omission of severe symptoms is, no doubt, largely due. Litten and Rosengart found, four hours after a small Probefrühstück, remains of food in the stomach, and in other cases a similar delay was observed.

IV. DILATATION.

In no condition has the œsophageal tube been more used than in dilatation of the stomach, and under no other circumstances has its use been attended with greater benefit. Dilatation of the stomach or gastractasis is, however, not a disease *per se*, but only a consequence either of increased obstruction at the pylorus, or of too great a mass to be moved, or of an enfeeblement of the muscular coat of the stomach. It is this want of proportion between the work to be done and the muscular force available to do it that causes the symptoms. Thus in many cases the stomach may be enlarged, and yet the digestion may show no impairment, because the viscus can completely empty itself; while in other instances, although there may be no great distension of the stomach, yet from the insufficiency of the muscular coat serious symptoms may be present, depending on the incomplete emptying of the contents into the intestine. The conditions are, as is well put by Ewald,[a] precisely analogous to those which occur in the case of the heart. Here, from obstruction at the orifice or other cause, considerable dilatation of the chambers may take place; but so long as the muscular energy keeps pace with the obstruction so long compensation is effected and serious symptoms do not result. But when compensation fails then the symptoms manifest themselves, and if the muscular tissue is much diseased this failure may occur before the dilatation has advanced to any very high degree. It is notorious that in cases of long standing heart disease, compensation sometimes fails quite suddenly, and the same would seem to occur in cases of stomach disease which have been described as instances of acute gastric dilatation.

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[a] Ewald. Klinik. II., 338.

[b] Kongresse f. innere Medicin. 1888. 23.

[c] Zeitsch. f. klin. Med. XIV., 573.

Those cases, then, in which by the well-known methods the stomach can be shown to have an enormous capacity and to reach below the level of the umbilicus, where after periods of increasing distress large quantities of fermenting matter are vomited in which sarcinæ and many other kinds of organisms are found, are only the last and incurable stage of a condition which, if recognised early and suitably treated, may be arrested in its progress or cured completely. Even in the advanced stage the stomach contents usually contain ferments and hydrochloric acid. Riegel,[b] in 21 cases of dilatation, made 156 observations. In only two of these cases was HCl even temporarily absent, and in not one of them was it permanently wanting. The same observation has been made by Ewald[c] and all other writers on this subject,

[a] Klinik. 144.

[b] Zeitschrift f. k. Med. XI., 201.

[c] Klinik. 140.

and I have myself in several instances found that the filtrate of the contents of the stomach possessed pretty good digestive power.

Of the great relief which even in this advanced stage follows washing out of the stomach, the use of antiseptics to check the various abnormal fermentations which take place in it, and the employment of a suitable dietary, it is unnecessary to speak. At best, however, the treatment in this stage can be but palliative.

Of far more interest is it to recognise the earlier stages when the distension is only temporary and inconsiderable, and when the treatment can not only relieve but cure. By no one has this subject been more admirably discussed than by Rosenbach.[a] He points out the difficulty and uncertainty in the diagnosis of enlargement of the stomach depending partly on the normal variations in the size of the organ in different individuals, and partly on the difficulties in the methods of examination. He shows that serious symptoms may be present where there is no dilatation, and that, on the other hand, dilatation may be present, and yet these symptoms may be absent; that it is, as stated above, the want of proportion between the work to be done and the energy available for its performance that is the essence of the disease, and this he calls "Magus-insufficienz" or "gastric motor insufficiency." The causes of this are various. Some are congenital, as narrowing of the pylorus, or abnormal positions of the stomach. It has many times been observed in association with movable kidney on the right side, although the connection between the two is not altogether clear. It is often due to hypersecretion or hyperacidity, which interferes with the digestion of carbohydrates, and possibly causes a spasmodic closure of the pylorus; chronic gastritis extending to the muscular coat will enfeeble this. But probably the most common cause is unsuitable food—food of an indigestible character, eaten hastily without sufficient mastication, and, above all, eaten in too large quantities at a time. In all these cases the food is too long retained in the stomach, and a too frequent repetition of this will infallibly lead to gastric dilatation.

Many ingenious methods have been devised for the detection of this motor insufficiency of the stomach. Of these one of the most ingenious is the salol method of Ewald and Sievers. Salol,[b] a phenyl ether of salicylic acid ($C_6H_4OH\ COO{\cdot}C_6H_5$), is not decomposed in an acid medium, but in an alkaline medium is split into phenol and salicylic acid. The latter is excreted in the urine as salicyluric acid, and is readily recognised by the purple colour it gives with neutral ferric chloride. Ewald and Sievers found that when one gram of salol was given with food the reaction manifested itself in the urine in from 40 to 60 minutes, latest 75 minutes. If it was later it appears it showed that the contents of the stomach were too long retained. As to the value of this method opinions vary. Huber[a] finds that even in healthy persons the reaction is often very late to occur, and thinks that the time of the first appearance of the reaction is of less value than the time of its disappearance. In normal stomachs this is 27 hours at latest after taking the drug, while in cases of motor insufficiency the reaction is found from 33 to 48 hours, the duration being in proportion to the insufficiency of the stomach. Pal,[b] however, in a number of carefully conducted experiments, finds that even in cases where, as proved by the stomach pump, the contents of the stomach pass normally into the intestine, the salicylic reaction in the urine may persist for even 72 hours. Its persistence seems to depend more on the deficient mobility of the intestine than on that of the stomach, since it was much greater when the bowels were constipated than when the stools were normally passed.

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[a] Sammlung klin. Vorträge. 153.

[b] Klinik. 53.

The method of Klemperer consists in injecting into the previously washed-out stomach 100 cc. of olive oil, and withdrawing what remains after two hours. This is a method which evidently is not of general applicability, and cannot be safely used in all cases.

The most certain and ready way of seeing whether the stomach empties itself normally is, unquestionably, to pass a tube and determine what remains in the organ. If 5–6 hours after a full meal the stomach is found empty then the motor function is normal.

The length of time during which matters will lodge in the stomach is almost incredible. I have myself washed out of a dilated stomach a quantity of charcoal which could not have been taken later than 10 days before, and that although almost every day in the interval vomiting had occurred. In cases of motor insufficiency the treatment is evidently chiefly to be directed to sparing the muscular coat. A diet easy of digestion, and, above all, taken in very small quantities at each meal, are the chief points to be attended to. Of the value of massage and electricity much doubt may be entertained.

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[a] Münch. med. Wochensch. 1889. No. 19. Cblt. für klin. Med. 1889. 803.

[b] Brit. Med. Journ. 1880. I., 1400.

V. NERVOUS DYSPEPSIA.

Under the term *nervous dyspepsia* Leube[a] described a condition met with most commonly in young persons of the upper classes. In many such, soon after eating, nervous symptoms appear, such as congestion of the head, stupor, inability to work, fulness in the epigastrium, eructation of scentless and tasteless gas. Vomiting is rare. These symptoms, which are often associated with other nervous manifestations, are not due to any disturbance in the chemistry of stomach digestion, nor to impairment of its motor functions. They occur too soon after eating to be explained by absorption of abnormal products of gastric fermentation, and an examination of the contents of the stomach during digestion shows that the acids and ferments are normal, and that the organ is empty within 7 hours after eating. It is assumed that the symptoms are of a purely nervous character, and due to an abnormal sensibility of the nerves of the stomach to the mechanical irritation of the food.

Riegel[b] in his first Report gives the results of 68 observations on 16 cases. In all free HCl was found, and the peptic power of the stomach contents was normal.

In his second Report[c] he gives 28 analysis from 9 cases. In all of these the duration of digestion was normal, and in 8 the chemistry was normal, while in one case a transitory and slight hyperacidity, due to excess of bile, was noticed. Riegel, however, thinks the term nervous dyspepsia should not be absolutely restricted to such cases, since it is quite conceivable that a disturbed secretion of the stomach may arise from a purely nervous cause, and that in a purely nervous way not only sensory but secreting and motor abnormalities may arise.

Ewald[d] calls attention to the imperfection of our methods of chemical observation, and adduces cases of a decidedly nervous character in which alterations of the chemistry were found, and also cases of unquestionable catarrh, ulcer, and carcinoma, in which the gastric juice was found normal. Further, he quotes from Leube himself cases of nervous dyspepsia in which, seven hours after eating, the food was undigested and no acid was present;

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[a] Deutsch. Arch. f. klin. Med. XXIII., 98. Cblt. 1879. 410. III. Congress f. innere Medicin. Cblt. f. klin. Med. 1884. 445.

[b] Zeitschrift f. klin. Medicin. XI., 204.

[c] Ibid. XII., 221.

[d] III. Kongress f. innere Medicin. Klinik. 444.

while cases of catarrh, ulcer, and carcinoma, have been observed in which, at this period, the stomach was empty. Hence on an examination of the contents of the stomach too much weight must not be placed. He calls attention to the frequent association of intestinal symptoms with those referable to the stomach—constipation, flatulence, severe pains in the intestine, and sometimes tenderness. He proposes to substitute for the term nervous dyspepsia, neurasthenia gastrica or neurasthenic dyspepsia.

The observations of Jürgens, who found in many cases of dyspepsia, with vague symptoms, extensive degeneration of the nervous plexuses of the stomach and intestine, and also diseases of the smaller vessels of these parts, show that we must not too hastily conclude that a mere functional disturbance exists because on superficial examination no discoverable anatomical basis for the symptoms presents itself..

It would appear, indeed, that the diagnosis of nervous dyspepsia is by no means an easy matter, and must rest, not so much on exact observations with the stomach pump, as on the general character of the symptoms, their variability, their association with other nervous manifestations, the absence of symptoms pointing to other well-defined disorders—as ulcer, carcinoma, and catarrh, and the results of treatment.

Herzog[a] has recently examined 14 cases in order to see whether by a careful investigation of the mechanical and chemical processes during digestion precision in diagnosis could be attained.

The motor activity was tested by Klemperer's oil-method—the chemical by the usual methods—after a test-meal. In 9 cases motor insufficiency was found—that is, after two hours too much oil was still found in the stomach. Of these, 5 showed hyperacidity; 3, normal acidity; and 1, subacidity. These are three stages which follow necessarily from motor feebleness. They may occur in other conditions, as catarrh, and have consequently nothing characteristic of nervous dyspepsia.

Of the remaining 5 cases which showed good motor power of the stomach, 4 manifested hyperacidity; 1, normal acidity; and none, subacidity.

He concludes that the differential diagnosis of nervous dyspepsia from other diseases of the stomach cannot be made by means of an examination of the gastric contents, since all the results got in this condition may be met with in cases where there is anatomical basis for the disease. The difficulty of distinguishing between catarrh and the neurosis is peculiarly difficult, and depends chiefly on the history of the case.

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[a] Zeitsch. f. k. Med. 1890. XVII., 321.

VI. SECONDARY DISTURBANCES OF DIGESTION.

In conclusion, I shall notice the disturbances of digestion which occur in some diseases other than those of the stomach. This subject is of great importance, and has hitherto received far less consideration than it merits.

1. *Phthisis.*—The great frequency with which dyspeptic troubles complicate the course of phthisis is well known. Not uncommonly the first symptoms of the disease are referred to the digestive organs, and a perhaps exaggerated importance has been assigned to this so-called pretubercular or strumous dyspepsia. Even in cases where such an early occurrence of dyspepsia does not occur, as the disease goes on, sooner or later, loss of appetite, vomiting, fulness and weight after food, coated tongue, and other symptoms of stomach derangement show themselves, and everyone knows what a serious complication they are, and how unfavourably they influence the prognosis. It is consequently not to be wondered at that many investigators have studied the course of the digestion in phthisical patients by the improved methods of recent research.

Rosenthal[a] found a constant absence of HCl in the stomach contents of 6 phthisical patients at different stages of the disease, all more or less febrile. None of these patients complained of special digestive trouble, and most of them had good appetites.

Herzog,[b] on the other hand, found in 8 patients HCl constantly present—often in relatively large quantity; but in all cases he found the motor power of the stomach enfeebled, and to this he attributes the loss of appetite and other gastric difficulties.

Schetty[c] examined 25 cases without selection—men and women, in early and late stages of the disease, with and without fever. He found HCl always present—sometimes increased—and also found that the stomach was empty six hours after the test-meal. Only in 3 cases was a small quantity of fluid present without remains of food. He hence concludes that the secretion and motor power of the stomach are normal. In most of the cases there was only disinclination for food, while in some the appetite was good.

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[a] Berl. klin. Wochensch. 1888. No. 45, p. 907.

[b] Inaug.-Dissert. Berlin. 1888. Ctblt. f. klin. Med. 1889. 533.

[c] Deutsch. Arch. f. klin. Med. XLIV. Heft 3. Ctblt. f. klin. Med. 1889. 589.

Klemperer[a] observed 14 cases. These he divided into cases of initial and those of terminal dyspepsia. The former are characterised by heartburn, eructations, sickness, fulness in the stomach, tenderness on pressure, vomiting induced not by food, but by attacks of cough. The appetite is variable and capricious. In the case of terminal dyspepsia the appetite is completely lost, there is no variation in the symptoms, there is little heartburn or eructation. Vomiting is independent of the cough, occurs every two or three days, and is abundant. The stomach is often considerably dilated, while in the initial stage it is of normal size.

In the initial stage the secretions of the stomach are normal, often with increased formation of HCl; but there is distinct enfeeblement of the motor activity. It is true that the stomach is often empty seven hours after a meal, but by the oil-method a motor insufficiency can be detected. In the terminal stage the HCl is greatly diminished or absent, the organic acids increased, pointing to abnormal fermentation, while the motor insufficiency is pronounced. The symptoms in the initial stage resemble those of the so-called nervous dyspepsia, while in the terminal they resemble those of carcinoma or atrophic catarrh. They have nothing characteristic for phthisis, but are merely the expression of a subacute and chronic gastritis. The primary condition is motor feebleness; this, after a time, is followed by hyperacidity, probably from the irritation due to the too long delay of the food in the stomach. Finally this leads to interglandular changes in the mucous membrane and such anatomical alterations as to cause cessation of secretion and ectasy of the stomach.

Brieger[b] seems to have met with positive results more generally than other observers. He examined 64 cases of phthisis in different stages of the disease.

Of the advanced cases only 16 per cent. showed a normal secretion, while in 9·6 per cent. there was a complete disappearance of the normal products of secretion.

In cases of medium severity 33 per cent. had normal secretion, while in 6·6 per cent. the secretion was entirely absent.

In the early stages there were about equal numbers with normal and altered secretion.

In general the motor power and faculty of absorption were altered in proportion to the alterations of the secretion.

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[a] Berl. klin. Wochensch. 1889. No. 11, p. 221.

[b] Deutsch. med. Wochenschrift. 1889. No. 14. Ctblt. f. k. M. 1889. 662.

The changes are not specific, but depend on a chronic gastritis passing on to atrophy.

Hildebrand[a] finds that the fever has considerable influence on the secretion of the stomach. When fever is constant, HCl is always absent, and when fever is variable so is the HCl. A rise of temperature to 37·8° C. (100·4° F.) causes the acid to disappear.

Immermann[b] examined 54 cases, and in 51 found the stomach empty after the test meal. In those cases where matters were still present the patient enjoyed good appetite and made no complaint of his digestion. It is consequently concluded that in those cases where true gastric dyspepsia exists, this is to be looked on as a complication and not as an essential part of the phthisis.

Schwalbe[c] has studied the anatomical conditions of the stomach in 25 fatal cases of phthisis. In only six instances was it found healthy. In the others the changes were—slight generalised interstitial inflammation, 9 cases; round-celled infiltration, 5 cases; amyloid degeneration, 1 case; and fatty degeneration of the glands, 4 cases. On the whole, the changes were not of a very severe character, or such as to impair considerably the secretion of the organ.

The differences in the results arrived at by the different observers are instructive, and show that there is no universal condition of the digestive organs in phthisis. Furthermore, the fact that the subjective feelings of the patient do not invariably correspond to his digestive powers, as tested objectively, indicates that in phthisis, where a good nutrition is of such vital importance, the patient's feelings or desires are a fallacious guide, and in regulating the amount and quality of the food we should, wherever possible, examine into and take account of the digestive function as experimentally determined.

2. *Heart Disease.*—In cardiac disease the stomach shares in the general venous congestion, and digestive troubles are a common and serious complication of these distressing affections. Only a small number of observations has as yet been made on such cases. It has recently been shown that while starch and albuminous food are well absorbed, fats are very imperfectly taken up from the intestine.

Hüfler found in 8 cases, seven times want of HCl in the stomach and once hyperacidity, consequently never a normal condition.

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[a] Ibid. No. 14. Ctblt. f. klin. Med. 1889. 662.

[b] Ctblt. f. med. Wissenschaften. 1890. 328.

[c] Virchow's Arch. CXVII., 316. Ctblt. f. klin. Med. 1890. 325

Quite different are the results arrived at by Adler and Stern,[a] who, in 20 cases, found HCl constantly in 16, inconstantly in 2, never in 2. Seven patients had digestive difficulties. Of these 4 had constantly free HCl, 2 inconstantly, 1 never. The other patient, who showed a constant deficiency of HCl, enjoyed subjectively a good digestion.

Here, then, we have the same state of things as in phthisis, and may draw from them the same conclusions. Grassmann[b] has found that in cardiac cases, while carbohydrates and proteids are well absorbed, fats are taken up very imperfectly, and appear in the fæces in abnormally large proportion. This defective absorption is due to chronic changes in the mucous membrane of the intestine, and is not found only in those instances where compensation is markedly deficient. The chronic catarrh of the stomach, which accompanies cirrhosis of the liver, is well known. How far this is due to the alcohol which commonly causes the hepatic affection, and how far to the venous congestion consequent on the partial obstruction, is not always easy to say.

3. *Kidney Disease.*—In kidney disease vomiting and other dyspeptic symptoms are almost constant, and constitute in some cases the most prominent features of the case. Biernacki[c] has examined six cases of subacute and chronic parenchymatous nephritis, with more or less œdema, and a considerable amount of albumin in the urine. The HCl was always much diminished, and in most observations absent. Lactic acid was in small amount, and pepsin greatly diminished, notwithstanding the motility was found to be unimpaired.

Fenwick[d] finds that similar changes occur in the glands of the stomach as those which occur in the kidneys, and concludes that the stomach has the power of excreting certain poisons, among which is urea; that by this an acute catarrh of the glands is caused. The vomiting in chronic renal disease he attributes to chronic gastric catarrh, and thinks that true uræmic vomiting occurs only in acute suppression of urine.

4. *Diabetes.*—Rosenstein[e] has made observations in ten cases of diabetes. In four of these the stomach contents were normal, in the remainder abnormalities were found. In some the HCl was absent

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[a] Berl. klin. Wochensch. 1889. No. 49. Ctblt. 1890. 328.

[b] Zeitsch. f. klin. Med. XV., 183.

[c] Ctblt. f. klin. Med. (Orig. Mittl.). 1890. 265.

[d] Virchow's Arch. CXVIII. Ctblt. f. klin. Med. 1890. 494.

[e] Berl. klin. Woch. 1890. No. 13, p. 285.

for a longer or shorter time, and then returned. This he looks on as a neurosis, and he finds that, like the absence of patellar-reflex and other neuroses, it has no direct relation to the severity of the disease as measured by the amount of sugar passed, or by the presence of acetone or diacetic acid.

In some cases, however, the HCl was permanently absent, and this is attributable to an atrophy of the mucous membrane depending on interstitial inflammation.

Gans[a] finds that the conditions are exceedingly variable in different individuals (normal secretion, hyperacidity, and diminution, or complete absence of HCl), and in the same individual at different times.

The motility was found always intact.

There was no relation found between the severity and duration of the disease and the condition of the stomach.

He thinks the deficient acid is more probably to be attributed to inflammation caused by excess in eating or drinking than to a neurosis.

Hirschfeld,[b] who has made a study of the metabolism of diabetic patients, describes a variety of the disease in which, while carbohydrates are all absorbed, the absorption of proteids and fats is exceedingly defective. In such cases the functions of the stomach and intestine must be performed in a very imperfect way.

These few examples will show what a fruitful field of investigation is to be found in a study of the chemistry of stomach digestion in diseases which do not primarily affect the digestive organs.

ART. XX.—*A Contribution to the Surgery of the Brain.* By WILLIAM THORNLEY STOKER, Surgeon, and GUY L'ESTRANGE NUGENT and JOSEPH O'CARROLL, Physicians, to the Richmond, Whitworth, and Hardwicke Hospitals, Dublin.

(*Continued from page 299.*)

CASE II.—E. W., tailoress, aged eighteen years, was admitted to the Whitworth Hospital, under the care of Dr. O'Carroll, on March 1st, 1890.

She was one of a family of eleven children, of whom seven were dead, and she had enjoyed good health up to four months previously to her admission, when she was attacked by pain in her right ear, followed by a purulent discharge from the meatus, and attended by impairment of hearing. She then began to lose appetite, to waste, to vomit, and to suffer from severe occipital headache. The vomiting increased in frequency, until it attacked her four or five times a day, the headache being relieved by the act of vomiting.

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[a] Berl. klin. Woch. 1890. No. 14., p. 331. Verhandl. der IX. Kongresse f. innere Medicin. P. 58.

[b] Ctblt. 1890. Nos. 10, 11. Orig. Contrib.

When admitted she was extremely emaciated, pallid, and presented an appearance indicative of great suffering and much exhaustion. There was a copious purulent discharge from the right ear, but no local tenderness or redness. She had from four to six attacks of vomiting daily, and had almost constant pain in the back of her head, which showed a paroxysmal character, and became at times so severe that it caused her to cry aloud in the most piteous fashion. She was seized five or six times a day by tonic spasm of the muscles of the back of her neck, causing extreme retraction of the head and attended by most distressing pain. These spasms were more frequent in the night than in the day, and lasted from five to ten minutes. During them her usual attitude was sitting up in bed, holding its rail, with her legs drawn up, and her left fingers alternately flexed and extended. At the end of the attack she generally turned over on her left side into the semi-prone position, her eyes at this period showing conjugate deviation to the right. She felt as if "the bed was going from under her," and was giddy when walking. Her right pupil was at times somewhat larger than her left. She had been hypermetropic from her school days. Ophthalmoscopic examination showed double optic neuritis. The reflexes were present, but diminished by emaciation. Her temperature in the axilla averaged 97°. She was partially deaf on the right side, and had right anosmia, not being able to distinguish asafœtida or iodoform with the right nostril.

She remained in the Whitworth Hospital until March 8th, when she was transferred to the Richmond Hospital for surgical treatment, her condition having become extreme, and Dr. O'Carroll having made up his mind that an intracranial abscess existed.

Examination of the case will show that sufficient grounds were present for this opinion. The points of evidence may be summarised as follows:—

1. The previous existence of inflammation and suppuration, engaging the middle or internal ear.
2. Persistent headache.
3. Cerebral vomiting.
4. Giddiness.
5. Optic neuritis.
6. Rigidity of the muscles of the back of the neck and retraction of the head.

As to where the abscess was situated some doubt existed, as the localising symptoms were less definite than those of a general character. As intracranial suppuration resulting from ear disease usually occurs either in the temporal lobe, on one hand, or in or about the cerebellum, pons, or medulla, on the other, it was fair to assume that if pus were present it would probably be found in one of these situations. In favour of the pus being situated in the cerebrum, was the anosmia, which would probably indicate some engagement of the anterior extremity of the uncinate convolution of the side on which the loss of smell was observed.

On the other hand, the relation of disease to the cerebellum, or, at all events, to the parts below the tentorium, was indicated by the marked rigidity of the neck muscles, the retraction of the head, and the frequency of the vomiting—all conditions which are observed to attain their greatest development when the pons or medulla is subject to pressure from suppuration. Again, the giddiness (cerebellar incoördination) pointed to pressure on the cerebellum. Also the absence of auditory phenomena on the left side, as affording evidence of freedom of the right superior temporal convolution, gave negative inference that, the temporal lobe being free, the seat of disease was probably cerebellar.

On weighing the evidence the conclusion arrived at was that pus probably existed in the temporal lobe, and that if not found there it should be sought for below the tentorium.

March 9th.—Operation, having been decided on, was performed under chloroform, and was planned so as to give access to the temporal lobe, and to permit of a trochar being passed down through the tentorium into the substance of the cerebellum, provided pus were not discovered in the cerebrum. A careful observation of Professor Cunningham's casts of the brain, and of Professor Fraser's photographs, having shown Mr. Thornley Stoker that the point selected by Mr. Barker for his trephine opening in these cases would not expose, as he supposed, the middle temporo-sphenoidal convolution, but would expose the inferior convolution so low down as to endanger the lateral sinus, Mr. Stoker took a point higher up—that is to say, a horizontal line being taken from the lower border of the anterior bony nares through the middle point of the meatus, 1¼ inches are measured from the mid-meatus point back along this line, and from this point a perpendicular raised for 1½ inches. The base line here used, passing from the lower border of the anterior bony nares instead of from the lower edge of the orbit (Reid's), as used by Mr. Barker, gives an additional elevation of about ¼ inch, and if the point be taken 1½ inches, instead of 1¼, above it, a total elevation of about ½ inch above Mr. Barker's point is reached. A trephine opening made here will usually expose the middle convolution, and will give easy access to any part of the temporal lobe, while it is high enough to enable an operator who desires to explore the cerebellum to do so by passing a trochar downwards, inwards, and backwards, without risk of wounding the lateral sinus.

Taking the point thus indicated as a centre, a curved incision was made above it, a flap turned down, the periosteum resected from a circular area, and a trephine opening 1 inch in diameter made. The dura was then divided, when the brain-substance protruded in the fashion usually seen where undue intracranial pressure exists. The temporal lobe was next explored with a trochar and cannula 8 mm. in circumference. The instrument was introduced in various directions, as far as seemed allowable without the risk of passing beyond the lobe in front, or into the ventricular cavity internally. Puncture was made nine times unsuccessfully, but on the tenth attempt pus was found two inches from the surface of the brain, in a direction downwards, inwards, and backwards from the trephine opening, at a point corresponding to the junction of the temporal and occipital lobes immediately above the tentorium. As the pus was very thick and exuded slowly, an aspirator was attached to the cannula, and about 4 drachms of pus withdrawn. The cavity was then washed through the cannula with a solution of boric acid, and, the cannula being withdrawn, a rubber drainage-tube 12 mm. in circumference was introduced along its track by a Lister's forceps. The dura was then replaced, the flap sutured, and the end of the drainage tube left protruding through its most depending angle. A dressing of sublimated gauze covered with a bulky pad of sublimated wood wool was applied, and retained in position by a linen cap made to fit the skull loosely and tied under the chin by strings.

The patient got almost complete relief from pain and spasm after the operation, and had no bad symptoms until 7 o'clock next morning.

March 10th.—She became very restless, got severe occipital pain and symmetrical spasms of the muscles of the back of her neck, attended by retraction of her head. She became drowsy and semi-conscious, and experienced great difficulty in swallowing. Her temperature, which was 99·2° at the time of operation, had now risen to 100·6°. The dressings were removed; considerable bulging of the flap was found to exist, and some slight oozing of blood and brain substance to have occurred through the tube. The tube was withdrawn, a stitch removed at each angle of the wound, and a considerable amount of clotted blood and softened brain matter pressed from under the flap. A small rubber drainage-tube was passed between the openings made by the removal of sutures; and as some heat and glazing of the skin were present, wet sublimated gauze-dressings were substituted for the dry ones previously in use.

March 11th.—Temperature 104°; not so much drowsiness; no pain in occiput, or spasm of neck; complained of pain in teeth and eyes, and of dryness of mouth and throat, and suffered so much difficulty in swallowing that she was chiefly fed by nutrient enemata and zyminised suppositories. When the dressings were removed a considerable oozing of brain substance and blood was found to have taken place.

March 11th to 22nd.—The relief from pressure now produced much amelioration in her condition. Her temperature gradually fell, and, until March 22nd, varied between 98° and 100°, reaching 101° on one day only. She remained in a fairly comfortable state until March 22nd, her chief inconveniences being due to pain in her teeth, dryness of the mouth and fauces, difficulty of swallowing, and a herpetic eruption at the right angle of her mouth. Pus began to be discharged on the 13th, and on the 17th the flap had become detached, and a hernia of the brain substance projected through the trephine hole. It was found impossible to do more than limit the size of this protrusion by moderate pressure, as when reduced and retained within the skull, severe pain and return of the old symptoms demanded that it should be allowed to protrude. On March 22nd urgent symptoms showed themselves, and from this on to the close of the case its history is a surgical romance of hairbreadth escapes of a very remarkable character.

March 22nd.—Temp., which on the previous day had been 98°, rose suddenly late in the evening to 104°. She was seized by a sudden and violent return of the old pains in the back of her head, attended by retraction as formerly. Her condition became so extreme that it was feared she was dying, and in Mr. Stoker's absence his colleagues—Messrs. Thomson, Corley, and Dr. O'Carroll—saw her in consultation, and concluding that fresh intracranial suppuration was the probable cause of trouble, probed the brain in the direction of the former abscess, but without result. Some pus, however, was pressed out from between the hernia and the posterior edge of the trephine opening.

March 23rd.—This morning the girl's condition not being sensibly improved, and some stupor existing, she was put under chloroform, the hernia removed on a level with the skull by curved scissors, and on careful probing a purulent cavity found to exist between the dura and bone, posterior to the opening. This had been sealed by the overlapping hernia, and the retention of pus had caused the advent of the fresh symptoms. A rubber drainage tube was placed in this cavity, the flap readjusted, and pressure applied. The effect of the drainage was immediate relief from pain, spasm, and stupor; a fall of temperature from 104° to 98°, and of pulse from 140 to 110.

March 23rd to April 12th.—From this date until April 12th a steady improvement took place. As some tendency to protrusion of the brain still existed, an elastic bandage was applied over the gauze dressing; it reduced the hernia in a few days, and being daily reapplied, prevented any further trouble in that direction until the aggravation of symptoms required its removal on April 28th, after which date the hernia reappeared. On April 5th the girl was so well that she was allowed up for a short time. On April 7th the epidural suppuration had ceased, the cavity closed, and the dura united to the bone, so that a probe could no longer be passed between them.

April 9th.—Exposed surface of brain and bone is granulating in the most healthy way. Her general health and comfort are good, and no pus appears on the dressings except such as is secreted by the surface granulations.

From April 13th she complained of pain in her forehead, eyes, teeth, back of neck, and right arm. These symptoms gradually increased in severity. The temperature, previously normal, rose on the 17th, and on that and the four following days varied between 102° and 103°. On April 21st she suffered from vomiting and difficulty of breathing, and on April 21st the cause of these sufferings became evident, for on exploring the granulating brain with a probe a sequestrum from the edge of the trephine hole, forming about two-thirds of a circle, was easily found and withdrawn. Its removal, however, failed to give relief, for although the temperature fell, the pains and dyspnœa persisted, the breathing became slow and irregular, and spasms occasionally attacked the *right* arm and shoulder. She became quite intolerant of the elastic bandage round her head; it was necessary to remove it, and the hernial protrusion again took place. As localised cerebritis seemed to exist and be extending, she was on April 29th put on a mercurial course, 3 grains of grey powder and ¼ grain of opium being given three times a day. The temperature now had an average of 99°, sometimes falling to between 97° and 98°, and occasionally rising to between 102° and 103°.

May 2nd.—On removing the dressings an area as large as a sixpence of the upper and back part of the hernia was found to be gangrenous, with an aperture in the centre of the slough discharging pus. On introducing a probe it entered an abscess cavity in the brain in a direction forwards and inwards for about 1½ inches, which, allowing for the projection of the hernia, would mean more than an inch within the cranial wall. The cavity was washed out through an incision made in the gangrenous tissue, a drainage tube inserted, and gentle pressure applied. The breath having become mercurial, the grey powder was reduced to one dose per diem.

May 3rd.—The slough had localised itself, and measures 1½ in. by 1 in. The mercury was stopped.

May 4th to 6th.—Condition rapidly deteriorating; occasional cerebral vomiting; stupor passing into coma; Cheyne-Stokes' respiration; pulse 130; limbs paralysed; right pupil dilated; left contracted; conjunctival reflex gone; she appeared to be dying. At noon on May 6th a free discharge of very fœtid pus took place, followed by a rapid return to consciousness; the breathing became quiet and regular; vomiting ceased; all paralysis disappeared, and the pupils became symmetrical.

May 7th.—Discharge of pus small and healthy; general condition most favourable; hernial tendency very slight, being easily overcome by elastic pressure, which was now resumed and used without inconvenience until the end of the treatment. The temperature became normal on May 7th, and remained without any remarkable change until May 13th.[a]

May 7th to 13th.—Between these dates very satisfactory progress was made, the abscess cavity, into which a probe could be passed for 1½ inches, was daily washed out with boric solution, and several small sloughs of brain substance were thus removed. A small sequestrum from the inner table of the skull was also discharged. The amount of pus gradually diminished.

On May 13th she began to complain of frontal pain. She rolled her head from side to side, the ward seemed to her to be turning round. She could see plainly, had photophobia, diplopia, pain in eyeballs, and the gas lights appeared to be of various colours. Temperature, 103°. On the next day, May 14th, the temperature had risen to 104·6°, and the conditions just mentioned were even more pronounced.

May 15th.—A free discharge of pus took place, and proved to be the last cerebral incident in the history, for it was followed by a return to nearly normal temperature; and from this date a steady and permanent improvement took place, which has resulted in complete relief from all cerebral trouble.

The clinical history of the brain disease ends here; for, although the girl was retained in hospital until August 7th for the purpose of observation, and for the treatment of lung disease, no further head symptoms showed themselves. The wound healed completely, the flap of skin was replaced over the trephine opening by the natural cicatrisation along its edge, and the surface of the scalp over the aperture in the bone soon assumed a slightly depressed character.

In the early part of June, although no cerebral symptoms were present, a hectic temperature made its appearance, and caused much conjecture as to its cause. A cough with purulent expectoration appeared, and, on examination, a small cavity was found in the apex of the right lung. No tubercle bacillus was found in the sputum, and it was hoped that the condition might be pneumonic—a hope apparently justified; for, under treatment by dry inhalation of carbolic acid and creasote, the expectoration diminished, the temperature fell, and in August she was sent to the Convalescent Home at Stillorgan, in a very fair condition of general health.

She has since been kept under observation, and now, November 10th, her condition is as follows:—Her mental condition is perfect; she has no paralysis of any form; her sight is as good as before her illness; hearing in the left ear is perfect, and in the right impaired so far as is usual where the middle and the internal ear have been the seat of suppuration. There is at present evidence of lung disease at both apices. She has lately spat blood, but the tubercle bacillus has not been found in the sputum.

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[a] In preparing this paper for the press the history has been completed up to the present date, Nov. 10th, 1890.

As regards the suppurating ear, subsequent to operation the purulent discharge was for a long time abundant. The ear was syringed twice a day with boric solution, and by the time convalescence had taken place the discharge had ceased. No local tenderness, redness, or other indication appeared which would have justified an operation to penetrate the mastoid bone.

Daily records of medical treatment in this case have not been given, because they would be tiresome, and not essential. Morphia and bromide of potassium were both used at various times for the relief of pain and spasm, and each seemed to have a good effect, and not to produce any evil consequence.

In addition to the value of this case for diagnostic and operative reasons, its clinical history has several matters of much interest, not only from a physiological point of view, but also as bearing on management, and as showing how far from hopeless even an apparently desperate case is. The engagement of the origins of the fifth and eighth nerves after the operation, as shown by the pain in the teeth, the dryness of the mouth, the facial herpes, and the difficulty of swallowing, speaks plainly as to the extent of brain substance engaged in the neighbourhood of the abscess. Again, the recovery of the brain from so extensive a destructive process as existed here is very remarkable. Not to speak of the amount of pus discharged, or of the numerous secondary abscess cavities which penetrated the brain in different directions, and each one of which seemed sufficient in itself to cause death, there was by sloughing alone, and by the removal of the hernia cerebri, an amount of direct destruction of brain substance which cannot have been less than an ounce, and may have been much more. And yet, with this extensive loss of material, no paralysis has been produced. Clearly, the temporal lobe is largely superabundant, and capable of considerable curtailment without much ill effect.

Concerning the hernia a word may be said. The effect of the elastic pressure here was so good that it teaches how slow a surgeon should be to remove such a protrusion. It is to be remembered that when irritation and inflammation have subsided there will be abundant room in the skull for the brain substance in such a case as this, where no new growth is present. Had elastic pressure been used from the time of operation it is extremely unlikely that the outgrowth would have taken place. But whether this be so or not, it should be remembered that a hernia cerebri, although perhaps rebellious to pressure while intracranial inflammation exists, will yield readily to it when that inflammation subsides.

The case is one worthy of note for these reasons, and not less so because of the extended exploration of the brain necessary to discover the abscess in the first instance. To discover pus at a distance of two inches from the surface of the brain, and successfully evacuate it, is an encouragement to future operators.

Art. XXI.—*The Place of Scientific Medicine among the Sciences.*[a]

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The claim of Scientific Medicine to a place among the exact Sciences is frequently denied, and we constantly hear the reproach advanced against our noble calling that it is not an exact science.

My object now is to examine how far this charge is just, how far it is capable of qualification, and to show, as I hope to do, that, when fairly contrasted with the other sciences, both abstract and applied, the Scientific Medicine of the present day does not stand at such a disadvantage as is generally supposed.

And here I would premise that under the term Scientific Medicine I include all branches of the healing art, and that surgery is included in that definition.

My first position is, that all medical knowledge is based on the immutable laws of Nature, while, in the pursuit of her investigations, Scientific Medicine calls to her aid the assistance of all those sciences which are considered exact.

Thus, natural philosophy in all its bearings is essential to her studies. The laws of light and motion, of pneumatics, hydrostatics, and all natural phenomena are subservient to her inquiries, and direct her proceedings. The inexorable laws of number are resorted to in the form of statistics, to test the accuracy of her conclusions, and wherever mathematical precision is required, the laws of mathematics are consulted, and applied where practicable; while in chemistry it cannot be denied that she enjoys the aid of a science of absolute exactitude.

In addition to these facts, modern invention has supplied her with instruments of precision, unknown to our forefathers, which throw much light on many obscure diseases, and add certainty and accuracy to our diagnosis in cases where doubt and uncertainty formerly prevailed. By virtue of priority, the stethoscope is entitled to a first place among the armentaria of precision. Of later years we have had numerous additions, among which the microscope and laryngoscope, the ophthalmoscope and endoscope take a leading place; while the introduction of the clinical thermometer as an aid to diagnosis has contributed very much to insure correct views and suitable measures. All these have done much to redeem scientific medicine from the reproach of inexactitude and empyricism. Furnished with these aids the modern physician can attain an insight into the nature of obscure ailments, as far from the conceptions of our forefathers, as the marvels of steam and electricity, the phonograph, microphone, or photography were beyond the utmost conceptions of the savants of some fifty years ago.

In the pursuit of her researches she avails herself of the methods adopted by the other sciences, abstract and applied. Induction, exclusion, and tentative approximation are her resources where ostensible facts fail to supply material evidence. And here she follows in the steps of her sister sciences, who use the same means under similar conditions. May she not then fairly be regarded as applied science, on an equal footing with the rest, since she uses the same adjuvants in her searches after truth?

To medical men it is unnecessary to enter into any details of the advances made in recent years by Scientific Medicine, and yet it is medical men only who can duly appreciate their value and extent. The general public are as incapable of comprehending the importance of the improvements accomplished of late years in the various departments of the healing art as they are of appreciating the self-sacrifice, dangers, and difficulties under which medical researches and investigations are pursued.

As an illustration of one difficulty, I will suggest the predicament of a watchmaker if called on to correct and repair the defects of an elaborate timepiece without being permitted to open the outer case and obtain ocular evidence of the causes of deranged action. The proposition would at once be pronounced impossible. And yet this is the task daily imposed on the physician. He is called on, not only to divine, but to correct the derangements of organs immeasurably surpassing the works of the most elaborate timepiece, both in delicacy and complication, without the possibility, in the vast majority of cases, of obtaining a view of the parts requiring repair or correction.

No such difficulty hampers the pursuit of any other science. In none, except medicine, is the student shut out from the objects which are the subject of his inquiry.

Then, as to the dangers attendant on medical pursuits—the frequent deaths from diseases contracted in the sick room, as well as from the blood poisons of the dissecting table or the operating knife, bear ample testimony to the risks which beset the student of disease; whilst the revolting conditions which are inseparable from anatomical researches, as well as from many duties of the sick chamber, entail an amount of self-sacrifice and self-denial sufficient to deter most men from engaging in the prosecution of medical investigations.

These remarks are offered in reply to those who, while they wilfully overlook the signal triumphs which have immortalised her career, accuse Medicine of lagging in the field of scientific rivalry.

And here may be a fitting place to examine how far the sciences usually deemed exact have the advantage over her. Among the exact sciences mathematics take the first place. But we know that in fact we cannot square the circle, nor can we even describe a circle or draw a straight line in perfect accordance with the mathematician's ideal; yet in practice we are able, by approximation, to come sufficiently near for all practical purposes.

Again, we find astronomy, which is dependent on mathematics for the evolution of most of her problems, is not an exact science, and presents questions which are still *sub judice*, and measurements which are open to dispute.

Again, the science of navigation, though founded on strictly scientific laws, is not an exact science, and presents, in many points, an analogy to the case of scientific medicine; for in both the guiding spirit is often obliged to accommodate his measures to extrinsic influences, and to modify his course by deviations from the exact paths suggested by theoretic science.

Again, the engineer cannot always realise the conditions of exact science in the execution of his works, but can come so near them by tentative approximation, and the system of give and take, that he is able to accomplish, successfully, undertakings of stupendous magnitude and surpassing difficulty.

In a word, all the applied sciences fail in the consummation of scientific exactitude; and it is not to be wondered at that scientific medicine, though dependent on natural laws, immutable and constant, should share with her sister sciences a failing common to all sublunary enterprises.

It must be conceded that Scientific Medicine has not attained perfection, and that much remains to be accomplished in the fields of discovery and research. But which of the sciences is not in the same predicament? They all have discovered much, but much more remains unknown; and Medicine has no reason to be ashamed so long as she can point to the triumphs she has already accomplished.

Here I may refer to the old, old reproach, "that doctors differ," which is so often used in disparagement of the stability of medical science. The true reason of the differences of opinion which shake public confidence in medical men is to be found almost invariably in the unequal capacity or varying acquirements of the individuals. All are not equally industrious in the pursuit of knowledge, and, independent of industry, some are naturally endowed with powers of diagnosis which others cannot attain to. Again, some are possessed of faculties of judgment and discrimination above their fellows, and thus it comes that, in obscure and difficult cases, men arrive at different conclusions. The cause is usually to be found in the men, and not in the science, which is often wrongfully blamed.

Such differences of opinion will ever arise in questions requiring superior judgment and higher intelligence, according to the relative knowledge and capacity of the arbiters to whom such questions are referred. It is so in the other sciences, as well as in medicine. Do we not find Lawyers every day differing in opinion? Do we not see Judges reversing each other's decisions? Do Doctors of Medicine differ more widely in their views than Doctors of Divinity? Is it not unjust then to hold Scientific Medicine responsible for discrepancies of judgment which ought properly to be set down to the account of diverse powers and unequal attainments?

And now, I would ask, is it not strangely paradoxical that the public estimation of those who devote themselves to the relief of human suffering, and the prolongation of human life, should be inversely proportionate to the advance of medical science? When medical knowledge was in its infancy, deeply wrapt in superstition, ignorance, and conjecture, the professor of the healing art was deemed a God-like man, and accounted worthy of divine honours. It was some 900 years before the Christian era that Homer pronounced one physician worth a host of other men—

"Ἰητρὸς γὰρ ἀνὴρ πολλῶν ἀντάξιος ἄλλων."

How crude was the Medicine of his day? How barbarous the practices adopted in her name? But now, when she gives daily proof of her advances by achievements as wonderful as the most surprising revelations of astronomy, or the latest marvels of steam, electricity, or engineering science, the physician meets with barren courtesy, and is too often looked upon as a public hack, honoured by the very acceptance of his services; while those honours, which enlightened Rulers do not hesitate to bestow on him elsewhere, are denied him by our Government, who deem a rare baronetcy the highest distinction to which the noble profession of Medicine is entitled to aspire!

But it too often happens that we underrate our blessings, and think more lightly of benefits the more freely they are bestowed; and thus, it would seem, the physician comes to realise the fate which the bard lamented for his gray goose quill—

> How frequent is thy use,
> How small thy praise![*]

And I would here ask—Is it not the want of proper union and *esprit du corps* which is responsible for all this? In all matters requiring combined action the Medical Body is as a rope of sand. They have not followed the example of the Lawyers and the Churchmen, who, by unanimity and combined action, have secured for themselves status, with honours and substantial prizes, of which the medical profession is miserably destitute. Well might the words which Tacitus applied to the country—"incuriosa suorum"—be transferred to the medical profession, for they have been truly neglectful of their material interests.

Does it not behove all, then, to keep in view the example of those professions which have done so well for themselves, and to cultivate a wholesome *esprit du corps?* The medical profession is a noble one—noble in its aim, and noble by the achievements it has effected for the relief of suffering and the prolongation of life. Why, then, should not all unite to obtain for it the status and the honours to which it has long since established an indefeasible right?

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[*] The case of our army medical officers is a striking instance of the disposition to deny even titular distinctions to the medical profession. The *vexata questio* of relative rank is too well known to need explanation. The education of the military medical officer entitles him to consideration. The average health of the army has been increased, and its mortality lessened by his means. In positions of extreme danger, he has exhibited heroism not surpassed by any branch of the Service. And yet a paltry, petty jealousy is able to deny him the status which justice and common sense would award as his right. Why should not the Army Medical Service be a Royal Service as well as the Engineers? In every respect the Medical Service is entitled to that honour. It is a special department, as honourable as the Engineers, and, like them, requiring a special educational ordeal. The interests of the Service would be served by attracting eligible candidates, and obviating the recurrence of such another dead-lock as was seen when aspirants were deterred, not long ago, from coming forward, through disgust and indignation at the treatment which army medical officers received from military authorities, and thus was the Service left shorthanded.

And here I will remark, that to the man who is jealous for the honour of a noble profession, nothing can be more painful than to see its fair name tarnished by the conduct of any of its members. That men who have obtained admission to the medical profession do sometimes violate the solemn obligations to which every member is obliged to subscribe when receiving his degrees, is an unhappy fact. Thus, in England we have seen qualified practitioners prosecuted, and punished by law, for lending the cover of their name to unqualified quacks, so as to enable them to evade the statute, and thus assist them in their illicit practice.

To the honour of the profession in Ireland, it has been almost altogether free from such derelictions—one case only being known where an Irish medical man has thought it consistent with his dignity and his oath to patronise, both in private and in public, an itinerant charlatan of the most flagrant and exaggerated character.

When a medical man thinks proper to adopt such a course, it is natural to conclude that he has found his proper level for himself, and he may well be left to his wallowing in the mire; but he has no right to sail under false colours. The seafarer who paints his craft on one side white and on the other black is at once suspected and shunned by all honest navigators.

Happily scientific medicine has attained such a position, and stands on such firm ground, that the defalcations of a few erring sons cannot impair her reputation or lower her prestige; and the cultivation of a proper *esprit du corps* would do much to preserve her from such ethical aberrations.

Among the charges advanced by the criticisers of Scientific Medicine is the assertion that she lags behind while the physical sciences stride majestically forward. An impartial examination of the facts will show that this impeachment is unjust. The astounding advances in all branches of the healing art, both remedial and prophylactic, which have been developed in the last half century, supply the most convincing reply. Living, as we do, in an age of scientific wonders, it would be hard to say what department of knowledge is entitled to the palm for wonderful discoveries or marvellous achievements; but to none of them does Scientific Medicine yield in the importance of her discoveries or extent of her progress. What triumph of physical science surpasses in usefulness or brilliancy the discovery of anæsthesia or antisepticism? Of the marvels of engineering skill, which exceeds in boldness of conception or executive success the great operations of surgery, now of daily performance, but which would have been pronounced, some few decades past, unjustifiable, if not impossible?[a] Nor are these the only proofs that Scientific Medicine has not been lagging in the onward march of science; chemistry attests the fact of progress by numerous discoveries of momentous importance, among which none excite our wonder and admiration more than her advances in the art of Synthesis. Latest of all, the researches of Professor Koch give promise of results almost beyond the hopes of the most sanguine speculators.

In seeking, then, to determine the place of Scientific Medicine among the sciences, we must take into account the following facts:—She is not perfect, but neither are they. Of all it must be said that much has been accomplished, but much remains to be discovered.

She is applied science in the widest sense, for she appropriates to her own purposes all the inventions and discoveries of all the other sciences and arts.

In all cases where absolute exactitude is impossible she resorts to measures similar to those by which the mathematician approximates to the quadrature of the circle, and the engineer emulates the ideal of the circle and the straight line. She tests her conclusions by the inexorable laws of number. In all her proceedings she follows the methods of the other sciences, while she, at the same time, avails herself of all their discoveries and improvements.

Her true position would appear to have been accurately described by a recent commentator in the following words:—"MEDICINE must never be looked on as a mere science; it is *much more than that*: it is WISDOM sublimated from many sciences."[b]

There is no reason, then, to evade honest criticism, or to pale before comparison with the other sciences, abstract or applied; while the loftiness of her aims stamps the healing art with a title of nobility which may be grudgingly withheld, but cannot be equitably estreated. Let all, then, combine to advance the profession in dignity as well as in knowledge, remembering always that those who look for respect from others must first respect themselves; and let each member individually strive to prove himself a worthy aspirant to those honours which have long since been conceded to churchmen, lawyers, and military heroes, and which, though still withheld, have long since been earned by the philanthropy, no less than by the progress, of Scientific Medicine.

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[a] It is scarcely necessary to specify the successes achieved by laparotomy, ovariotomy, cystotomy, thoracic and cephalic surgery, now of almost daily occurrence.

[b] Editor, British Medical Journal, June 28th, 1890.

In conclusion, then, when we endeavour to decide the place of Medicine among the sciences, is not the conviction forced on us that she is much more than a mere science? May she not be justly regarded as the joint offspring of all the sciences, equipoised among them all? and is not the predication true, that the scientific medicine of the present day may be truly represented as—

"WISDOM SUBLIMATED FROM ALL THE SCIENCES?"

ART. XXII.—*The Causes of Enteric Fever in the Dublin Garrison.*

By P. H. FOX, M.S., F.R.C.S.I., L.R.C.P.I., D.P.H., &c.

A PROBLEM of great importance at present amongst army surgeons and engineers is—"How shall we eradicate typhoid from the barracks of this city?" Some people have attempted to solve the question by recommending extensive "alterations;" but unfortunately it was found that the more extensive the alterations the more prevalent the disease became. Others then recommended sweeping "demolitions," and, in the case of the Royal Barracks, one entire square was razed to the ground. On the last occasion I visited these barracks everything was in such a state of chaos that one might have thought a hostile force had been shelling the place from the opposite side of the river. Nevertheless typhoid was not eradicated; and, consequently, the next and last step was "evacuation." The troops were moved out bodily, and placed under canvas in the Phœnix Park. That was a certain and sound step in preventing the spread of the disease amongst the men. But it leaves the question of eradicating the disease from the "infected areas" still untouched. Now what are the infected areas? Are the Royal Barracks, Linen Hall, and Ship-street Barracks the infected areas? Certainly not, because enteric fever has occurred in the other barracks, and even in the Phœnix Park as well. Then must all the barracks in the city be regarded as infected areas? I think not exclusively so, because the disease has prevailed amongst the civil population, and sporadic cases have occurred from time to time in every part of the city. Consequently, if we speak of infected areas we must include every part of Dublin, civil and military. Moreover, I hope to be able to show that before enteric fever can be eradicated from the military barracks it must be first driven from the homes of the civil population. It is the result of my experience at home and abroad that whatever disease prevails amongst the civil community of the neighbourhood, that disease is certain to appear amongst the troops, no matter how perfect the sanitary arrangements and precautions in barracks may be. I do not deny that certain infectious diseases may, *de novo*, arrive in barracks. That, of course, is possible. What I do maintain is that, in the vast majority of cases, the infection is contracted outside barracks, or it is introduced with the food or drink. In this age of bacteriologists few would deny that enteric fever is produced by a bacillus. That bacillus is said to be found abundantly in the dejecta of typhoid patients, in liquid sewage, effluvia, and milk. Consequently, it appears certain that foul emanations and contaminated milk are the great factors in the production of the disease. Whether the milk is mainly fouled by sewer gas or by sewage is an open question. Food and drink may be fouled by either. My own opinion is that, in this city at all events, the germs of typhoid pass into milk through exposure to foul emanations, because a great number of the dairies are situated in the slums, cows are allowed to be kept and milked in crowded localities, and often in ill-ventilated back yards.

As a proof that milk is the chief carrier of the poison in question I would cite the following:—During my service in India I had for some time medical charge of the 29th Foot (the Worcester). This regiment marched from Mhow to Nusseribad in, I think, sixty-five days. The milk used on the march consisted of preserved milk and the milk of a few cows which were driven along with the force. There was no sickness, and the regiment arrived at its destination in most excellent health. Fourteen days later one of the subalterns, myself, and several men were seized with enteric fever. The milk supplied by a native in the Bazaar was found to have caused the outbreak—because only those who drank Bazaar milk were attacked. The officer just mentioned and myself used to have porridge and Bazaar milk at the mess every morning. Our bungalows were in good sanitary condition, and we could not reasonably blame anything except the Bazaar milk.

However, putting aside milk as a source of the disease, let us see how far sewer gas and fæcal emanations, or the effluvia of decomposing organic matter, may operate. With that view it will be necessary to give a somewhat detailed description of the most unhealthy of our Dublin barracks, together with a note on one or two of the city slums—as soldiers (when "on pass") are in the habit of frequenting these "dens" of filth and infection.

I. LINEN HALL BARRACKS.

The barracks which have been evacuated through insanitary causes are Linen Hall, Ship-street, and the Royal Barracks. I will describe them in the above order. The vicinity and approaches to Linen Hall Barracks consist of (for the most part) tenement houses and dirty narrow streets, which always have a most pronounced smell of fæcal effluvia. The tenement houses have every appearance of being filthy, over-crowded, and dilapidated. They are, as I am informed, occupied by the poorest class of tenement lodgers—people who have no idea of the laws of health, and who constantly suffer from those diseases which spring from bad hygiene.

When I was in medical charge of Linen Hall Barracks I used to pass every morning through one or other of these dirty narrow streets, and I invariably noticed more or less human excreta lying here and there on the footpaths. I often wondered how these streets could be so much fouled. On making inquiries I was informed that (not to speak of the children) the night soil is often chucked out of the windows. This state of things is bad enough outside the barrack gate. Now let us go inside. These barracks are closely surrounded by the streets and tenements just described. The ground on which they stand is narrow and confined. It was excavated very extensively, and contains immense cellars and underground passages. A "main sewer," 6 feet × 4 feet, runs through the centre of the barracks; it is roughly built, and consists of "rubble" masonry. It is full of rat holes, and is neither air nor water tight. It contains two or three feet deep of solid sludge, which emits, at times, a most intolerable stink. I am of opinion that originally this huge sewer was designed as an aqueduct, and was used for the purpose of conveying water from the Royal Canal for trade purposes—*e.g.*, bleaching and scouring, and that in its passage inwards it conveyed trade refuse to the river. However, its present use is that of a "main" sewer, into which the barrack latrines and w.c.s discharge. The most extraordinary thing about it is that, although the foul emanations are capable of poisoning the atmosphere of the entire barracks, still the barrack kitchen, in which the soldiers' rations have been cooked for years, stands close up to and within a few feet of it.

No wonder that enteric fever has been prevalent, and that the health of the troops quartered in these old linen warerooms should always have been a source of the utmost anxiety to the medical department. The quadrangular structures which constitute "the barracks," so called, enclose irregular series of small square yards; they are so closely packed and so ill-designed that the free circulation of air and the proper admission of light are prohibited. They appear to have been built for the purpose of manufacturing and storing linen. The ceilings are low; the means of ventilation most defective. There are no fire-places. In a word, these old linen galleries are so insanitary as to be absolutely dangerous to health, and totally unsuitable for the occupation of troops; moreover, having regard to the filthy and over-crowded nature of the vicinity, the sooner "Linen Hall" is totally evacuated the better.

II. SHIP-STREET BARRACKS.

We next pass to the consideration of Ship-street Barracks; they are situated to the south of the lower Castle Yard, and adjoining it. They have recently undergone extensive alterations and repairs. An entire new system of drainage pipes was laid in cement, and trapped in the most approved manner. The basements were concreted, and rendered absolutely air-tight and waterproof. The system of ventilation is good, and altogether I am of opinion that the general sanitary condition inside these barracks is presently as good as could be expected. But I am sorry to say that the general sanitary condition of the vicinity—*outside barracks*—is the worst that could possibly be imagined. The approaches are by narrow streets, which are even more foul than those in the neighbourhood of Linen Hall. I had medical charge of these barracks during the summer, and I passed through these streets in discharge of my duties at various hours by day and night. Antyhing to come up to the offensive nature of the putrid emanations of these streets I never before experienced. I found the smells were always bad at 10 o'clock, p.m., and at about 9 o'clock, a.m. I was curious to find out the cause. One morning I smelt my way into the back yard of a tenement house, where I found women emptying buckets of night soil into the ash-pit. The effluvium was so great that I was almost afraid to approach the pit. However, at any risk, I was determined to look in; I held my mouth and nose with my hand, and had a peep. The pit was about a third full with sewage and offal; there were large holes in the walls; I saw rats running in and out of these—two were in the centre of the pit gnawing the gristly end of a beef bone.

Another cause of the stinks is the foul condition of the disused basements. Nearly all the houses in Werburgh-street and in Ship-street, &c., are tenements, and the basements cannot be let in most of them, because the Act specifies a certain height of ceiling—viz., 7 feet—which they do not possess. The result is, all sorts of rubbish find their way into these neglected basements, and they become half full with filth, and terribly foul. A married soldier lodged in one of these tenement houses in Ship-street, nearly opposite the barrack gate; he got enteric fever, and I was ordered to report on the sanitary condition of the premises. I inspected the house on two occasions—once in the presence of a policeman. The sink at the back door was untrapped; the w.c. was out of repair, and could not be used, and, I was informed, had not been used for several months. There were a great many families living in this house, and the night soil of all was chucked into the ash-pit. This pit had not been cleaned or emptied for over three months! The smell was such that I think I had better not attempt to describe it.

A few doors from where this poor soldier got typhoid stands a "Registered Dairy;" beneath the dairy you can see into the unoccupied basement. The little window of this basement was once guarded by iron bars, but apparently the corroding action of urine has eaten most of them away. The last time I passed through this street I saw several ounces of human excreta close to the dairy door. As I was showing the nuisance to a policeman the dairy maid came to the door; I asked her where she kept her cows; she replied, "In Summer-street." This Summer-street South locality is one of the most filthy in Dublin. I have not seen the cow-sheds, but I am of opinion that milk produced in Summer-street and sold in Ship-street runs the utmost possible risk of being fouled by effluvia. We all know that if milk be exposed in a pan to the influence of noxious vapours it will rapidly go bad. We know that if milk be exposed to the fæcal emanations of a privy it will quickly decompose, and myriads of bacteria will be formed. Is it not, therefore, reasonable to expect that the milk kept for sale in our city slums is a most fertile cause of enteric fever and other diseases?

I have recently attended a case of enteric fever in Ship-street Barracks. This patient undoubtedly drank milk which was purchased at the dairy opposite the barrack gate. I was at first puzzled as to the exciting cause; but I have now no doubt that the disease was produced by the use of milk probably fouled in the manner indicated. It is the result of my experience that the milk-drinking soldiers are more frequently the victims of enteric fever than those who never touch it.

In connection with the vicinity of these barracks there is another sanitary defect which I must refer to—viz., the narrow and disproportionate breadth of the streets. It is admitted by all sanitarians that the width of the streets should exceed the height of the houses—otherwise the sun's rays cannot fall sufficiently into the streets, the air cannot freely circulate, and the result is that the atmosphere about the houses becomes stagnant, damp, and impure. Now, in Ship-street, the barracks, on the one side, and the civil quarters on the other, are about thirty-five feet apart. The average height of these houses, civil and military, is nearly double that. I have not measured them, but the greater number are four stories high. There are two or three alleys on the civilian side of the street. I inspected one of them; it was an exceedingly narrow passage, and at the far end I was confronted with a ferocious dog, which was chained up in a corner. I found that human beings lived up there too. I met one—a cadaverous-looking man, with stooped neck and shoulders; he was somewhat wasted; had a short cough, quick breathing, and a little flush on the cheeks. "Any dairy cows up here?" I asked. "No," said he, "all horses"—and his voice had that hollow tone which is sometimes called "sepulchral." He assured me that the place was "healthy," a statement I was surprised to hear from a poor creature whose consumptive aspect I could not help regarding as a thorough proof to the contrary.

III. THE ROYAL BARRACKS.

However, we will leave that subject for the present, and pass on to the consideration of the Royal Barracks. The ground in the vicinity of these barracks slopes with a gentle declivity from the North Circular-road to the river; immediately behind the barracks, at Arbour-hill, this slope is somewhat precipitous, so much so that when the barracks were originally constructed a great part of the side of the hill had to be cut away. The site, therefore, consists of the side of this hill cut and bevelled out. Such a site, from a sanitary point of view, is most objectionable, because the subsoil water, which is always in motion, must pass beneath the barracks in its course to the river; and, after heavy rains, this subsoil water rises rapidly and forces out large volumes of foul air from the earth; consequently the more the soil in the vicinity is polluted the more foul the air thrown out, and the more poisonous the atmosphere. That large quantities of impure air are thus driven into the barracks is certain, and to my mind that is the chief cause of their unhealthiness.

In addition, when we consider that the original construction of the drains and sewers was decidedly bad, and that the basements and ground floors of the buildings were neither air nor water-tight, the danger to health must have been very great.

When I was in medical charge of these barracks I occupied quarters on the fourth floor at the top of a house in Palatine-square; the foul air which ascended and filled these top rooms was at times most unbearable; nothing could banish the odour. I would leave the windows open day and night, and scatter charcoal about, yet the peculiar sickening smell would always be detected on entering the rooms. Officers who lived in corresponding rooms in adjoining houses experienced the same. They constantly complained of waking unrefreshed, with a feeling of general stupor and malaise. These symptoms I attribute to breathing the foul air.

It seems an extraordinary thing that, if we except certain rodents, civilised man is the only air-breathing animal who can live for any length of time in a vitiated atmosphere. If dogs be confined in an atmosphere vitiated with sulphuretted hydrogen or sulphide of ammonium, they commence to purge and vomit, and rapidly sink. If horses be confined in a foul stable, they will soon be attacked with diarrhœa, and will gradually waste and die. If a hive of bees be placed over fæcal emanations, they either leave the hive or die, and the honey becomes rancid and bad. Man, however, if continuously exposed to impure air will fall a victim.

The remedy suggests itself at once—remove the cause. Prevent the foul air from entering the buildings by insuring an air-tight condition of the floors, and remove obstructions to the free and continuous circulation of pure air in and about the houses. On the north of the Royal Barracks the high walls and "cut-away-hill" are great barriers to this free circulation of air. On the north side of Palatine-square the cut-away-hill is faced with masonry to the height of about sixty feet, and it is not more, I think, than about twenty feet from the barracks, or even less at certain points.

Now if, as already stated, the breadth of a street should exceed the height of the houses, it follows that this hill must be still further cut away to a distance equal to the height of the houses on Palatine-square, otherwise the free circulation of air cannot take place. The houses on this square are four stories high, so that about 80 feet in width, or even more, will have to be removed. This will, of necessity, require the lowering of the Arbour-hill road from Stoneybatter to Montpelier-hill.

Something similar must be done, in my opinion, with Ship-street—that is to say, the street must be widened, otherwise the barrack will never be healthy.

With regard to removal of excreta it will be necessary, if the water system be continued, that a complete new set of pipes be laid in solid cement and guarded by the most approved traps. From my experience of the Royal Barracks I am of opinion that w.c.s ought not to be permitted inside the quarters under any circumstances. To counteract this nuisance Surgeon-Major W. J. MacNamara, M.S., has invented and patented a most ingenious w.c. In it the objects attained are—(1) the pan and soil-pipe are outside the house in the open air; (2) the seat can be got at from within, and used without exposure to cold winds; (3) the flushing of the pan is assured; and (4) the risk of sewer air or fæcal effluvia entering the dwelling is rendered absolutely nil. I consider it a very valuable invention, and one I hope to see extensively employed in this city.

Passing over the question whether the lower animals—*e.g.*, sewer rats and barrack dogs—act as factors in the production of enteric fever, I come to a very important subject—viz., the probability of a great number of military people picking up the germs of the disease out of barracks. On this point the great Professor Parkes says:—"Frequent journeying from place to place exposes all persons to a greater chance of inhaling the typhoid effluvia, and the real source of the disease may be far removed from the place which is actually suspected." The private soldiers of this garrison take "frequent journeys" to the slums of this city, and I am strongly of opinion they contract more than syphilis in these places. A favourite locality with them is what they call "Monto," their playful abbreviation for "Montgomery-street." I have never been in the street, but I am informed its sanitary condition is of the worst possible nature. Soldiers ought to be prohibited by general order from entering these pest-holes.

As to the possibility of typhoid being brought into barracks by milk and other articles of food I could have but one opinion. However, I must reserve my remarks on the Dublin dairies and slaughter-houses for some future occasion. Meantime, I would recommend that no butcher or dairyman should be given an army contract till his premises have been carefully examined by a military medical officer.

BROWN-SEQUARD'S ELIXIR VITÆ.

THE great physiologist's suggestion of hypodermic injection of testicular extract was received with scant favour by the profession in these islands. On the Continent, on the contrary, it has been thought worthy of examination; and an early number of *Il Policlinico*—a new fortnightly periodical, started a few months ago at Turin—devotes an article to the subject. "At any rate," says our contemporary, "the question is one of great interest, and the name of the illustrious physiologist who has raised it demands that it should be at least considered." Mairet, we are told, had obtained temporarily successful results from application of the treatment to melancholic patients; other physicians, who are named, succeeded in curing cases which had resisted other methods. Leprous patients are reported to have benefited in a most remarkable manner from the injections. The extract, we learn, may be administered by enema as well as hypodermically. Experiments have also been tried with "ovarian liquid." An American lady practitioner, Dr. Augusta Browne, injected ovarian extract hypodermically in twelve cases of females suffering from extreme debility, due to age, insomnia, hysteria, or uterine disease. The effects, in all the cases, is reported to have been beneficial.

EXTIRPATION OF THE LARYNX.

DR. KRAUS, of Vienna, has collected statistics of 240 cases of this operation, of which 160 were total and 80 partial. Total extirpation was practised 142 times for carcinoma, and of these 132 were sufficiently long under observation; 43 per cent. died within two months, without recurrence; 6 per cent. within the year. In 29 per cent. the disease returned within the year, in 4 per cent. later. Of the 132 cases, 18 per cent. were considered cured, having been under observation, without recurrence, for more than a year; 13 cases for more than two years, one case for nine. Of 66 cases of partial extirpation for carcinoma, 29 per cent. were pronounced cured.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Treatise on Rheumatism and Rheumatoid Arthritis. By ARCHIBALD E. GARROD, M.A., M.D., Oxon; M.R.C.P.; Assistant Physician to the West London Hospital; late Casualty Physician to St. Bartholomew's Hospital. With Charts and Illustrations. London: Charles Griffin & Co. 1890. 8vo. Pp. 342.

SOME time ago Messrs. Charles Griffin & Co., of London, published, as one of their medical series of volumes, a treatise on gout by Sir Dyce Duckworth, M.D., Physician to, and Lecturer on Clinical Medicine at, St. Bartholomew's Hospital. The work which now lies before us belongs to the same series, and may be regarded as the companion-volume of Sir Dyce Duckworth's treatise. It sees the light under the happiest auspices. Written by Sir Alfred Garrod's son, it bespeaks the attention of the Medical world, in which the ~~name of~~ Garrod is a household word on the subject of gout and rheumatism. Dedicated to his friend and teacher, Sir Dyce Duckworth, it claims for its author a careful study of the portraiture of Rheumatism as a distinct systemic disease, which he has presented to us in its pages.

The work is divided into two sections, or "Books." The first of these is devoted to "Rheumatism," and embraces twenty-five chapters, extending over 230 pages of letterpress. The second book treats of "Rheumatoid Arthritis," in ten chapters, running to some 60 pages. The volume ends with a full bibliography, followed by a copious index.

From the foregoing brief analysis our readers may gather that the author draws a distinction between rheumatism considered clinically as a definite, systemic, and specific malady, and rheumatoid arthritis, osteo-arthritis, or arthritis deformans—a malady in which "the characteristic joint lesions are not the manifestations of a systemic disease, but rather the results of a disturbance of the nutrition of the joints, such as may be due to a variety of different causes, local or constitutional" (page 235). "We may define rheumatoid arthritis as a dystrophy of the joints which is not dependent upon any recognisable central lesion" (page 236).

This is the keynote of the work, and it is struck at the very outset. "Rheumatism," says Dr. Garrod, "is far more than a mere disease of the joints, and no form of arthritis can establish a claim to be regarded as rheumatic unless it is frequently attended by some at least of its visceral lesions"—namely, endocarditis, erythema, chorea, sore-throat, subcutaneous fibrous nodules, myalgia, and, less frequently, lumbago and iritis. "The great variety of forms which rheumatism assumes in different cases, and the number of structures which it involves, indicate that it is a systemic disease; and the characteristic distribution of the lesions, their general characters and fundamental resemblances to each other, suggest that it is also a specific malady, resulting from the activity of some distinct and peculiar morbid process" (page 15).

Nor is rheumatism to be regarded as too closely related to gout. The supposed relationship of these affections is largely based on the prominent part which arthritis plays in both, upon the occasional difficulty which attends their differential diagnosis, and upon the hereditary and recurrent characters which both exhibit. But "rheumatism is a disease of early life, gout of the middle and later periods; the articular lesions constitute a part only of either disease, and the remarkable visceral lesions of rheumatism differ entirely in their character from those of gout. Between classical monarticular gout and rheumatic fever there is little, even superficial, resemblance. The causation of rheumatism is very different from that of gout, dietetic errors having apparently no share in the production of the former malady; and although both diseases are apt to recur in the same patient, the periodic attacks of gout find no parallel among the phenomena of rheumatism" (page 16).

Having thus cleared the field, and separated rheumatism from arthritis deformans on the one hand and from gout on the other, Dr. Garrod proceeds in successive chapters to discuss the pathology, ætiology, visceral manifestations, and treatment of true rheumatism.

Two short, but interesting, chapters are devoted to an account of the various theories which have been put forward as to the pathology of rheumatism. Cullen's theory that the articular lesions of rheumatism were due to the direct influence of cold upon the joint-structures; the nervous theory, broached by J. K. Mitchell, and according to which rheumatism is caused by some lesion of the spinal cord; the lactic acid theory of Prout; and the still more ingenious neuro-chemical theory advanced by Dr. Latham in his Croonian lectures of 1886, are in turn mentioned only to be in turn discarded.

In Chapter IV. the infective theory is discussed, and Dr. Garrod believes that many of the phenomena of rheumatism are more easily explained on the supposition that it arises from the introduction into the system of a micro-organism from without than upon any other theory which has as yet been propounded. He admits difficulties in the way of the unqualified acceptance of the infective theory, but points out that it alone explains the epidemic prevalence of the disease from time to time and its comparative independence of meteorological influences. "Nor," he says, "are examples wanting of infective maladies which occur in epidemics, although they are not apparently directly communicable from the sick to the healthy: this is the case, for example, with cerebro-spinal fever, and, to a lesser degree, with pneumonia"—surely, he might have added—with influenza also. He thinks that the remarkable analogies which exist between rheumatism and pyæmia constitute the strongest argument which has yet been brought forward in support of the infective theory of the former disease. In neither malady does the fever run a definite course, and in their earlier stages they may so closely resemble each other in their clinical aspect that a differential diagnosis may be well nigh impossible.

Accepting with reserve the infective theory, Dr. Garrod proceeds to mention the view held by Dr. Maclagan in this country, and M. Bertholon in France, that rheumatism is most closely allied to the miasmatic diseases—as Dr. William Saunders of London, writing to Haygarth in the year 1809, observed:—"It is an ague in disguise." This view Dr. Garrod is not prepared to accept any more than that put forward by Friedländer to the effect that "the articular lesions are merely the peripheral manifestations of a lesion of the central nervous system, which causes irritation of a joint-centre in the medulla," or the suggestion of Hueter that the micro-organisms of rheumatism, on entering the system, first attack the endocardium, causing endocarditis and then articular embolism.

The subject of "Ætiology" (thus correctly spelled) is considered under the headings: the influences which control the prevalence of rheumatic fever, our knowledge of which is admitted to be still very fragmentary; and the influences which determine the individual attack—namely, heredity, diathesis, age, sex, occupation, alcoholism, lactation, scarlatina, in addition to such exciting causes as cold and damp, over-fatigue, and injury.

In the seventh chapter the author enters upon the study of the clinical features of rheumatism with that of the most typical form of the disease, the "so-called rheumatic fever." This expression embodies the author's belief in "a local origin of the febrile disturbance," for, according to him, "the elevation of the temperature is directly dependent upon the development of arthritis, and of certain other lesions." Candour, however, compels him to state the view of Charcot, who concludes "that there is in rheumatism an unknown quantity which escapes accurate measurement, and which would almost seem to justify the opinion of Graves, Todd, and Fuller, who looked upon the febrile disturbance as a primary phenomenon." Dr. Garrod objects: "If the fever of rheumatism is a primary phenomenon, it is remarkable that it runs no typical course." But surely the very same objection might be urged with equal force in the cases of pyæmia—the very disease between which and rheumatism Dr. Garrod himself, as we have seen, draws a close parallel—and of erysipelas, in which the fever ranges are atypical or polytypical (Wunderlich). In the end our author admits that we are not yet in a position to decide the question whether the pyrexia of rheumatism is a primary phenomenon or how far it depends upon the presence of local lesions.

A very interesting description of rheumatism in childhood is given in Chapter VIII., after which the various phenomena of the disease generally are discussed in detail in successive chapters on arthritis, pericarditis and endocarditis, pneumonia and pleurisy, rheumatic affections of the nervous system—cerebral rheumatism, hyperpyrexia, rheumatic insanity, spinal rheumatism, rheumatic chorea, peripheral neuritis; the cutaneous manifestations of the disease, sore-throat—pharyngitis and tonsillitis; subcutaneous rheumatic nodules and periosteal nodes, and myalgia. Some rare accidents of rheumatic attacks are described in Chapter XIX.; and in Chapter XX., on "Scarlatinal Rheumatism," Dr. Garrod maintains that this is a true rheumatic affection, and that scarlatina must be ranked among the more important exciting causes of the disease. With apparent inconsistency he disputes the claim of dysenteric, gonorrhœal, or parotid arthritis to be considered as rheumatic, for "the mere development of arthritis in the course of a disease which does not, as a rule, implicate the joints, affords little evidence of the occurrence of rheumatism as a complication of the original malady, unless some of the other characteristic lesions of rheumatism are developed in association therewith" (page 187).

The study of true rheumatism is brought to a close in Chapter XXII., on "Chronic Articular Rheumatism," which is described as often a sequela of an attack of acute rheumatism, although "similar pains are met with in joints which have been the seats of other kinds of acute arthritis; and not infrequently they originate *de novo* in those who have never suffered from any previous articular affection."

The treatment of rheumatism is considered under the headings: general treatment, older methods, modern treatment, and the management of certain special accidents and sequelæ. The first part of the section on Treatment is largely historical and retrospective. The author in it speaks highly of the quino-alkaline method introduced by his father, Sir Alfred Garrod, who directed that up to 5 grains of quinine should be rubbed up with 30 grains of bicarbonate of potassium, to which some mucilage is afterwards added. To the therapeutic value of this combination in "many forms of arthritic disorder, Sir Dyce Duckworth bears testimony. Part II. gives an excellent account of the modern treatment by salicin, salicylic acid, and the salicylates. It is brought well up to date, for even Dr. Dindenborn's observations on the efficacy of sodium dithiosalicylate are quoted. Attention was first called to the action of the salicylic drugs by Buss in Switzerland and Riess (wrongly spelled "Reiss" by Dr. Garrod) in Germany, in 1875, and their observations were confirmed by Stricker in 1876. In this latter year also Dr. Maclagan, who had employed salicin in the treatment of rheumatism since 1874, published the results of his experience with that substance, a glucoside of salicylic acid obtained from the young bark of the willow and poplar. According to Dr. Ensor, of the Cape of Good Hope, an infusion of willow-bark had long been used among the Hottentots in the treatment of rheumatism. The conclusions arrived at by Dr. Garrod as to the remedial efficacy of the salicylic acid treatment of acute rheumatism agree closely with those formulated by Dr. J. W. Moore in a paper read before the Medical Society of the College of Physicians of Ireland on December 6, 1876, and published in the number of this Journal for January, 1877 [Volume LXIII., No. 61, Third Series, page 79]. Curiously enough, Dr. Garrod overlooked Dr. Moore's paper, which was one of the earliest contributions to the literature of the subject. There is no reference to it in the very full and usually accurate bibliography at the end of Dr. Garrod's work. In answer to the question: "Are the salicylic compounds specific anti-rheumatic drugs," Dr. Garrod replies that these remedies have a repressant rather than a curative action in rheumatic fever. Certain it is that they control the articular lesions, while they have little effect in preventing or in curing the cardiac lesions of the disease. The overwhelming balance of medical opinion selects salicylate of sodium as the most useful form for administration. Dr. Garrod, when describing the manner of giving this salt, omits one of the most agreeable methods—namely, in effervescence, and (to avoid undue depression) with a slight excess of ammonium carbonate. He has not much to say in favour of antipyrin, the action of which apparently closely resembles that of the salicylic compounds.

In Part III. of the section on treatment, attention is given to the management of such complications as pericarditis, endocarditis, pneumonia, sore throat, hyperpyrexia, and arthritis, as well as of such sequelæ as chronic articular rheumatism. The author approves the application of a blister over the upper portion of the præcordial area when a pericardial friction-sound is developed; but he omits to mention that this plan often remarkably controls the arthritic effusions, as long since pointed out by Dr. Alexander Harkin, of Belfast.[a] This chapter ends with a brief description of the mineral waters and baths which are beneficial in chronic articular rheumatism. In his very full list he includes the Algerian thermal stations of Hammam R'Irha, near Algiers, and Hammam Meskoutin, near Bone; but he leaves out the now celebrated Egyptian springs of sulphur, iron, and salines of Helouan-les-Bains, fifteen miles south of Cairo, of which an interesting description is to be found in "Egypt as a Winter Resort," by F. M. Sandwith, F.R.G.S.[b]

Book II., consisting of ten chapters, treats of Rheumatoid Arthritis, Osteo-arthritis, or Arthritis Deformans (Virchow). In a historical review of the subject honourable mention is made of two Irish authors, who wrote classical treatises on "Rheumatic Gout" or "Chronic Rheumatic Arthritis"—we mean, of course, Robert Adams and Robert William Smith. Succeeding chapters deal with the ætiology of the affection, its clinical features, pathology, and treatment.

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[a] The Pathology and Treatment of Acute Rheumatism. Dublin Journal of Medical Science, Vol. LXXII., No. 118, Third Series, page 296; October, 1881; and Transactions of the Ulster Medical Society, Session 1880–81.

[b] London: Kegan Paul, Trench & Co. 1889. Pages 84, et seq.

The author is satisfied that rheumatoid arthritis is *not* a chronic form of acute rheumatism, and that its independent origin and character are sufficiently established. In a word, Dr. Garrod is inclined to adopt the dystrophic theory of the origin of the disease. "It is," he says (page 286), "this idea of a defective nutrition of the joints which underlies all the theories which regard rheumatoid arthritis as dependent upon a disorder of the nervous system, a view which was first advanced by Remak, and which has been ably advocated of late years by Professor Senator, Dr. Ord, Sir Dyce Duckworth, and others. Although the advocates of the dystrophic theory hold various opinions as to the manner in which the dystrophic changes originate, they all agree that they are probably analogous to, although less intense than, those observed in the arthritis of locomotor ataxia. Some have thought that rheumatoid arthritis is the result of primary lesions of the nervous system, whereas others refer the articular affection to a reflex influence originating in such local causes as uterine disorders, and spreading in a like reflex manner from one joint to another."

The conclusions to which the author would lead us are embodied in the following paragraphs at the close of the chapter on the pathology of this disease:—

"In the present state of our knowledge the dystrophic theory of rheumatoid arthritis must remain only a theory; but I would maintain that it affords the best explanation of the peculiar features of rheumatoid arthritis, of the variety of its clinical forms, in spite of the identity of the articular lesions, and of the character and distribution of those lesions; and would call to witness the increasing favour with which it is regarded by the profession at large.

"If it be granted that we have in polyarticular rheumatoid arthritis a dystrophy of many joints resulting from the action of depressant causes upon the central nervous system, or produced in a reflex manner, as Dr. Ord suggests, it is but a small step to allow that similar dystrophic changes may occur in a single joint which has sustained injury either from direct violence or from inflammatory processes of which it has been the seat, or even as the result of senile decay. In this way we may explain the occurrence of identical morbid changes as the result of the action of a variety of causes, and the appearance of rheumatoid arthritis sometimes in the guise of a generalised disease, at others as a secondary or merely local morbid process." (Page 291.)

The closing chapter of Book II. is devoted to the treatment of rheumatoid arthritis. A very good chapter it is, although the references to "Sir Alfred Garrod" are somewhat too pointed for our taste, which would have substituted the homely words "my father" in the case of two out of the three references to Sir Alfred's excellent observations on the treatment of "Gout and Rheumatic Gout." The author properly recommends a nutritious and even generous diet, with a moderate allowance of good wine or malt liquors, in so tedious and lowering a disease as rheumatoid arthritis. Dr. Garrod thinks that the most useful drugs in the treatment of this affection are iodine, iodide of iron, cod-liver oil, and quinine. In cases where the disease assumes an unusually acute form, he has sometimes seen good effects from an alkaline quinine mixture containing some iodide of potassium.

The electrical treatment of the affection, originally recommended by Remak, and since advocated by Althaus and many others, is well described in the words of Dr. Steavenson, and the chapter ends with a short account of the "Thermal Treatment" by mineral baths and waters, in which special and approving mention is made of Bath, where the Aix treatment by massage baths is now extensively carried out.

The general impression left upon our mind by a study of this work is that it is well written and reliable. There are a few literary blemishes, no doubt—as, for example, the phrase (on page 274) "Neither Colles nor Robert Todd *were* inclined;" and the use of the hybrid words "monarticular" and "polyarticular" for "monarthritic" and "polyarthritic" respectively, as well as the curious plural "arthrites" for "arthritides"—but, as a rule, Dr. Garrod's English is good, and his style terse and clear.

We have little doubt that this monograph will take rank with the best treatises on special medical subjects in the English tongue, and we heartily congratulate Dr. Garrod on the successful way in which he has established his right to be regarded as an authority upon Rheumatism and Arthritis.

The Croonian Lectures on Cerebral Localisation. Delivered before the Royal College of Physicians, June, 1890. By David Ferrier, M.D., LL.D., F.R.S., F.R.C.P.; Professor of Neuropathology, King's College, London.

These lectures give a most interesting account of our present knowledge on the subject of cerebral localisation. They do not contain much that is absolutely new; some recent and important experiments, however, are described.

Dr. Ferrier first treats of the results which are observed after removal of the cerebral hemispheres in various animals. He then gives a brief sketch of the various investigations that have been made with regard to the functions of the cortex. The muscular phenomena which are caused by stimulating various parts of the brain of monkeys are fully described. Several very complete diagrams are given showing, in various animals, the position of the centres which preside over different movements. Several cases are alluded to in man where, after trephining, electrical stimulation of the cortex has been employed for purposes of diagnosis. The localisation of the visual centres is next discussed at considerable length. Dr. Ferrier's general statement on this still much disputed subject is that "the occipito-angular region is the visual area of the cortex. Complete destruction of this area in the one hemisphere causes permanent hemianopia to the opposite side; while bilateral destruction causes complete and enduring blindness of both eyes." Regarding the view held by many, that the centre for vision is situated in the cuneus and its immediate neighbourhood, Ferrier says, "The probability is that any apparent relation between lesions of the cuneus and the occurrence of hemiopia is due to the special proclivity of this region to be affected by morbid vascular conditions, and to coincident implication of the optic radiations of the occipito-temporal region."

The fourth and fifth lectures are occupied with the centres for hearing, tactile sensation, smell, and taste. Dr. Ferrier's experiments on monkeys, with a view to ascertain the paths of centripetal sensory impulses in the cord, are interesting. He concludes thus:—

> "To my mind, the evidence from the various facts mentioned is in favour of the view that the whole of the sensory paths pass up the opposite side of the spinal cord, and that they are not contained either in the posterior median column, or in the direct cerebellar tract, or in the

antero-lateral tract; and as the pyramidal tract may be entirely sclerosed without any affection of sensation, we are led, by a process of exclusion, to suppose that the sensory tracts ascend in immediate relation with the central grey matter. If the sensory tracts retain constant relation with the grey matter this would account for their non-degeneration upwards, like the other continuous afferent tracts of the cords."

The sixth, and last, lecture treats of the motor centres, and of the psychical effects of lesions of the frontal lobes.

These lectures are very well worth reading. They are, however, simply lectures, and cannot well take the place of a book of reference, such, for example, as Professor Ferrier's "Functions of the Brain." There is no index, which makes it somewhat difficult to find in them any desired subject.

Contributions to Surgery and Medicine: Fractures, Dislocations, Deformities, and Diseases of the Lower Extremities. By HUGH OWEN THOMAS. London: H. K. Lewis, 1890.

THE number before us is the seventh of the series of Mr. Hugh Owen Thomas' contributions to medicine and surgery. Dealing with fractures, dislocations, and deformities, the number gives abundant scope to the author to bring prominently before the profession his many ingenious forms of splints and soforth, the examination of which will well repay study.

The Treatment of Syphilis of the Nervous System. Read before the International Medical Congress at Berlin, August, 1890, by JULIUS ALTHAUS, M.D., M.R.C.P., London, Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park. London: Longmans, Green & Co. 1890. Pp. 35.

DR. ALTHAUS first discusses Prophylactic Treatment. He recommends excision of the primary sore, and careful mercurial treatment continued for a considerable time. If this is carried out he believes there is but little danger of trouble arising in the nervous system.

In the second part he discusses the treatment of lesions of the nervous system. The treatment of these cases, which his experience has led him to adopt, consists in the hypodermic injection of a mercurial cream; this is prepared by rubbing thoroughly one part of metallic mercury with four parts of purest lanolin, and then adding five parts of carbolic oil of 2 per cent. strength. The whole forms a grey cream which contains 10 per cent. of mercury. Of this Dr. Althaus usually injects 5 minims into the glutæi muscles once a week. He states that the injections are not painful, and that he has never known inflammation or abscess to ensue. He does not say for how long a period he generally continues the course of injections.

It may be that this mode of treatment is peculiarly suited for certain cases; but its drawbacks are so many we do not expect it will ever come into very general use.

Outlines of the Clinical Chemistry of Urine. By C. A. MacMunn, M.A., M.D., Dublin. London: J. & A. Churchill. 1889. Pp. 254.

Dr. MacMunn is one of the small band of men who, amidst the occupations and distractions of general practice, find time, not only to keep themselves abreast of modern science, but even to contribute to its advancement. His book on "The Spectroscope in Medicine" is well known.

Although more attention is now paid by clinical teachers—and rightly so—to the careful examination, chemical and microscopical, of urine than was customary a few years ago, still many practitioners are lamentably ignorant of modern methods and results.

To such we can recommend Dr. MacMunn's book, which aims at giving a brief, but accurate, account of the chemistry of urine in health and disease. It embodies most of the recent work in this line, so much of which is due to the laborious investigations of German physiological chemists. Little of importance is omitted, the text is clearly arranged, and there are but few inaccuracies, and these of a minor sort.

Part I. deals with normal urine and its constituents, and their variation under diseased conditions; Part II. treats of the abnormal constituents of urine; and Part III. of urinary deposits and calculi.

Chapter I., on the Functions of the Kidney, and the Mechanism of its Secretion, might well have been omitted. It contains nothing but a few elementary anatomical and physiological data, with which the clinical student should be already familiar. With one or two exceptions, we also doubt the advisableness of including quantitative processes in a book on clinical chemistry, and think that such topics should be relegated to the larger manuals. Even a comparatively simple quantitative determination—*e.g.*, of chlorides, phosphates, or sulphates—requires the command of a laboratory, the expenditure of much time, and a higher degree of chemical training than most medical men possess. For diagnostic purposes, moreover, quantitative estimations are seldom, if ever, required.

As might be expected from the author's previous studies, the use of the spectroscope is frequently adverted to; and in Chapter VII., on the Colouring Matters of the Urine, Dr. MacMunn incorporates his own researches upon this still obscure subject.

The book is illustrated with sixty-four woodcuts and a plate of spectra, and deserves to be cordially received by the profession.

Practical Ambulance Tablets. By SIDNEY PARTRIDGE, M.D., Examiner and Lecturer to the St. John Ambulance Association. London: J. & A. Churchill. 1890. Pp. 52.

IN lectures and works on "Ambulance" and "First Aid" it is difficult to know what to say, and still more difficult to refrain from saying a great deal too much. It is certainly advantageous that the public should have some rational ideas about cuts and burns, faintings and fits; they should know that pressure will control bleeding, and that a broken bone should be kept at rest till a doctor comes; but it would be equally disadvantageous if inexperienced persons were to attempt to put in practice the teachings of this little book, and look for crepitus in fractures, undertake to diagnosticate them from dislocations, and apply a Liston's long splint. If we ever have the misfortune to have our skull fractured, may the Fates preserve us from meeting with somebody, straight from a course of ambulance lectures, who would in the manner here described attempt to feel with his or her finger an indentation in the bone! At the same time there is a great deal of information concerning cuts, fits, and other subjects which everybody ought to be familiar with.

The directions are clearly given; headings are made conspicuous by being printed in red, and altogether we think this is quite as good a little book as any other of its class. If the author would, in the second edition, withdraw those parts which are likely to do harm, by inducing inexperienced persons to take too much on themselves, we would have much pleasure in recommending it most cordially.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.R.C.P.I.
General Secretary—W. THOMSON, M.D.

SECTION OF PATHOLOGY.

President—E. H. BENNETT, M.D.
Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, November 7, 1890.

The PRESIDENT in the Chair.

Psorospermosis.

DR. PATTERSON read a paper on psorospermosis and its relation to cutaneous cancer in light of recent researches, illustrated with drawings and microscopic specimens exhibiting coccidia in proliferating epithelium.

DR. M'KEE, while admitting that coccidia might ultimately be shown to be the cause, or at least one cause, of cutaneous and perhaps other forms of cancer, considered that the little information we at present possessed told rather against than for this view. Perhaps the best known disease undoubtedly referable to organisms of this class was the affection of the rabbit's liver produced by *Coccidium oviforme*. His own observations on this disease led him to adopt the opinion of Leuckart and to regard it as inflammatory. The epithelium of the ducts was destroyed, and the proliferation appeared to be simply secondary. Signs of inflammation were also present in the surrounding tissues. Paget's disease of the nipple resembled eczema, and was apparently inflammatory, yet the same form of *coccidium* found in it was also credited with the production of the malignant tumour of the breast which sometimes followed it. He thought it more probable—more in harmony with our present ideas—that Paget's disease simply acted as one of many "irritants," any one of which might give rise to a malignant tumour in a part already predisposed to it. There was no proof that the presence of the coccidia in the mammary tumour was any less accidental than, say, the discovery of pus-cocci in a caseous lymphatic gland. To attribute the affection of the nipple and the malignant tumour to the same agent appeared to him a very doubtful proceeding, more especially as a long period elapsed before the carcinoma began to develope. As regards the bodies described in cutaneous and other cancers he was very sceptical, and could not feel satisfied that those shown by Dr. Patteson were really coccidia.

It was resolved to submit the specimens to the Committee of Reference.

Typhoid Organisms.

Dr. MacWeeney read a paper on this subject, and exhibited pure cultures on gelatine and agar-agar—the former obtained by von Esmarch's "Roll-Tube" method—from the spleen and enlarged mesenteric glands of a patient who had succumbed at an early stage of the fever, under the care of Dr. Nixon in the Mater Misericordiæ Hospital, Dublin.

Dr. MacWeeney said he proposed first to give a few historical details regarding the development of the bacillary doctrine for typhoid, and alluded to Eberth's researches, which (1880) were the first to throw any clear light on the subject. His methods and discoveries were described, and then Gaffky's in 1884–6. The cultivational appearances first described by the latter observer were gone into and illustrated from the specimens laid before the Academy that evening. Dr. MacWeeney expressed his regret at not being able to produce a potato cultivation on that occasion. The one he had prepared had unfortunately become contaminated with mould, while the new ones were not sufficiently advanced. Owing to the biological questions concerning the bacillus, Dr. MacWeeney mentioned the various views of Gaffky and Birch-Hirschfeld, who considered that it formed spores, while Buchner and Ali Cohen were of opinion that the supposed spore-bearing condition depended upon involution-processes, or degenerative changes. The final point discussed was the pathogeneity of the bacillus. Was it really the cause of typhoid? As methods of research were gradually improved the bacillus was more and more constantly found forming familiar isolated colonies in mesenteric glands, spleen, liver, and sometimes in the kidneys of patients suffering from typhoid. Ali Cohen's exhaustive researches had shown that while present in every case of the disease, it was invariably absent in all other infectious cases examined (*e.g.*, several of typhus). The real difficulty in making its cause and effect a matter of absolute certainty was the impossibility of inoculating animals with typhoid. They appear to be insusceptible of acquiring the disease. Chantemesse and Widal assert that they have communicated the disease to mice and rabbits; their experiments are, however, invalidated by the totally opposite results arrived at by quite a series of observers (Gaffky, Fränkel, and Simmonds, Beumer and Peiper, Ali Cohen, &c.), who have found that the bacilli, whether inoculated subcutaneously or injected into the alimentary canal of lower animals, do not multiply but rapidly disappear, and that the injurious effects observed are due not to an infective process but to an intoxication with poisonous metabolic products (probably triamines) generated by the bacillus during its growth on artificial nutrient substrata. The result of Brieger's and De Blasi's researches on these *toxines* were then given, and the paper concluded with a critical account of the various announcements lately made concerning the discovery of the bacillus in earth, drinking water, river water, milk, &c., and their bearing on such questions as the origin of epidemics, &c. In addition to the cultures (which had been made in the bacteriological laboratory at the Mater Misericordiæ Hospital), microscopic slides of the bacilli, both in pure cultivation and in tissue (mesenteric gland), were exhibited.

The **President** remarked that not long since an ourang-outang died of typhoid fever in the Zoological Gardens; and if ourang-outangs could be got to experiment on with these organisms, perhaps the crucial test, the want of which Dr. MacWeeney had referred to, would be obtained.

Dr. Nixon said that it was an established fact that typhoid fever was invariably associated with those special micro-organisms, and what he had to do now was to devote himself to endeavouring to find some chemical or other agent which would completely destroy those organisms and so rid them of the terrible plague of typhoid fever. The older teaching with respect to this poison was that it underwent two stages of development—one being the stage in which it existed within the body, when it was held that it was not capable of transmission from individual to individual; and the other a stage without the body, when it became eminently infectious. In other words, typhoid fever, like cholera, was a miasmatic contagious disease. There was a record of an epidemic of typhoid fever which was traced to eating the flesh of calves. Perhaps the experiment might be tried of inoculating calves with some of these cultures.

Dr. O'Farrell wished to know if the microbe was found in water or milk as well as in the human body?

Dr. Bewley asked had Dr. MacWeeney found the organisms in cases in which the disease had endured so long as four or five weeks.

Dr. MacWeeney, in reply, said he would be very glad to experiment upon either ourang-outangs or calves if he were supplied with them. As to the infectiousness of typhoid, there was no doubt that its organism was capable of living outside the human body, and that infection thence took place—not from one patient to another. Of all the organisms with which they were acquainted it was the least exacting in its cultural requirements. A German investigator named Bonner, of the highe-t scientific reputation, who was sent to investigate an epidemic, and examined the wells of the locality, found it, not in the well water, but abundantly in the soil in the neighbourhood of the well. It had been seen, microscopically, in the blood of the living human subject, although rarely. As to its having been found in both water and milk, that had been ascertained by investigators of the highest reputation. With reference to the question put by Dr. Bewley, he (Dr. MacWeeney) had found the organism in cases up to the end of the third week; he had not examined subjects in which the disease had lasted longer.

Dilatation of the Stomach.

Dr Nixon brought before the Section a case of dilated stomach following stenosis of the pylorus. The stenosis was caused by cicatricial changes in the mucosa, the result of ulceration. The case would have been a favourable one for resection except for the extreme anæmia and weakness of the patient. Dr. Nixon, in discussing the ætiology of gastric dilatation, called attention to two conditions which he regarded as a not infrequent cause of this condition—viz.:—(1) atony of the muscular coat following fever, especially enteric fever; (2) anæmia and chlorosis.

The President said that if dilatation had been attempted the coats of the stomach would have been burst by the operation.

Dr. Nixon, in reply, said he quite agreed with the President that the case would have been eminently unsuitable for dilatation, and would have proved a snare to any surgeon who should have attempted that operation. As to the occurrence of coffee-ground material, he thought that in most cases it was the result of something that the patient had taken before death, although undoubtedly in some cases it represented altered blood.

The Section then adjourned.

SECTION OF SURGERY.

President—H. G. Croly, President of the Royal College of Surgeons, Ireland.

Sectional Secretary—W. Thornley Stoker, M.D., F.R.C.S.I.

Friday, November 14, 1890.

Injuries to the Head.

The President discussed the subject of injuries to the head, and, as illustrated by several cases which he detailed in his own practice, he emphasised the necessity of careful examination, close observation, enforcing a strict regimen and the exclusion of anything calculated to excite inflammation. In cases suggesting drunkenness the stomach pump should be used, and the result would be that with the washing out of the stomach, if the case were one of drunkenness, consciousness would be restored; but if it were not, insensibility or heaviness would continue, and it then behoved the surgeon to make a careful examination of the scalp, mindful that fracture might exist without any external wound, or, if there was a wound, to make a free examination with the scalpel and raise any broken bone, so as to avert concussion being converted into compression. He cautioned young surgeons to be slow in suspecting malingering, than the detection of which nothing was more difficult.

Enterectomy.

MR. P. J. HAYES read a paper on enterectomy. Several inches of the colon were removed for cancer. The patient lived for 9 months.

MR. KENDAL FRANKS said his case adverted to by Mr. Hayes was operated on in October, 1887, for the removal of a cylindroma, which was microscopically examined. There were few intestinal symptoms. There was flatulence, but no obstruction. The diagnosis, which was difficult, was that there was a solid tumour involving either the mesentery or omentum, and it might or might not involve the intestine. The tumour was easily movable. It was on the right side, a little below the liver, but it was movable into the right iliac fossa—rather to the right or to the left side. The operation occupied him an hour and three-quarters. On opening the abdomen he found a tumour the size of his fist, involving the transverse colon in its whole thickness, with large glands in the meso-colon behind. The only chance was in complete excision. He divided the intestine on each side, an inch and a half to two inches from the growth, and, dissecting into the meso-colon, he enucleated all the glands he could find, removing also a V-shaped piece from the meso-colon. The length of the intestine removed was five inches. He sutured the intestine with Czerny's suture. The Lembert suture was theoretically the most perfect, but the other could be made a continuous suture and be more rapidly inserted, and it was of the greatest importance to complete the operation as fast as possible. On the fifth day there was an enormous discharge from the bowels. Three years and a month had elapsed since the operation, and the man was still in perfect health. Mr. Hayes' case and his were the first two successful cases in the United Kingdom. Statistics of 51 cases showed that 59 per cent. recovered from the operation, and about 40 per cent. died as the immediate result of it. The after-results were not encouraging, and were mainly due to recurrency of the disease in 2, 3, 9, and 18 months. It was only in early cases that the operation would be justifiable.

MR. M'ARDLE, referring to the statement of Mr. Hayes, that a discharge of fæces took place about the fourth day, said that was the time about which the suture would hold, if it would hold at all; but as regards Mr. Hayes' explanation that it was the result of coughing, coughing did not influence the intestinal canal. Previously to operations on the intestine it should be the rule to wash out the intestinal tract from above and below. He did not think that coughing would affect an intestine firmly sutured, if weakness did not exist and the seat of weakness was at the mesenteric border. A Lembert's suture was not sufficient to close the tube. Unless the V-shape was taken out, a pouch would be left into which a hernia would afterwards drop. The suture for closing the V-shaped slit was undoubtedly the continuous suture, which would effect as complete a closure as by ligaturing. At present the tendency was to join the intestines very rapidly by large plates of bone drawn together. Even in removal of pieces of the colon, still more favourable results were obtained by intestinal anastomoses, which frequently gave the same relief as was obtained by excision,

Sir Wm. Stokes attributed the high mortality to the great length of time occupied by the operation, necessitated by the complicated system of sutures usually adopted. Decalcified bone plates in early cases would lead to more favourable results.

Mr. Corley said the operation performed by Mr. Hayes was perfectly successful, but was yet only a temporary expedient to stave off the prospect of death a few months longer. Taking out a triangular piece, he found there were still glands that seemed to go up under the upper surface of the liver that no man in his senses would try to take out, and it was not surprising to hear, in three months, of symptoms of carcinoma of the liver being set up.

Mr. Thomson said the operation of enterectomy was one of great difficulty and danger, and, no doubt, useful under certain conditions; but he was not sure that it was one which, however successful from the surgeon's point of view, was always the best for the patient. The question of what kind of suture was most likely to be successful was one of great importance, and ought to be settled. He would himself prefer the method introduced by Senn, which was more rapid, and, as regards results, much better than any sutures discussed. The justifiability of enterectomy in cases of epithelioma was, however, a question of doubt, from the fact, that after taking out a tumour, there still remained diseased glands, which would inevitably reproduce the disease in time. Therefore, the operation, however successful in a surgical point of view, was, after all, one of palliation only in cases in which the malignant disease was left behind, and in such cases either an operation which would provide an artificial anus or establish anastomosis would be less dangerous.

The **President** said there was no question as regards all cancerous operations that there could be nothing better than complete removal, if it could be done consistently with safety. Cancerous cases did not bear prolonged operations or loss of blood, and he would stitch the intestine as quickly as possible.

Mr. Hayes replied.—As regards the occurrence of fæcal fistula being attributable to some defect in the suturing of the meso-colon to the colon, the sutures were carefully inserted, and the meso-colon was folded upon the intestine to secure thorough preservation from interference of blood-supply to the gut at that point. The ligatures were placed close, and the edges overlapped, and were thoroughly secured. His opinion still was that the coughing did cause a strain on the great intestine. The intestine was thoroughly washed out, and nothing was left undone that could favour progress after the operation. The decalcified boneplates were appropriate if the operation of effecting anastomosis could be performed, but where it was necessary to establish continuity after the removal of a piece of intestine, he did not see how the decalcified boneplates could be brought into play. As to performing the operation at all, if he saw a patient wasting with suffering from abdominal pain, complaining of the great difficulty of action of the bowels, and he felt a movable tumour, he would recommend the operative procedure. In his own case, the patient was thankful for having the operation performed as resulting in complete relief from intestinal trouble, and that relief was maintained to his death. When cancer reappeared, it attacked a different organ—namely, the liver. The patient lived for nine months, having enjoyed immunity from all trouble for six months. With that result, and Mr. Franks' patient still alive and free from disease, he would look with favour upon the performance of the operation even for intestinal cancer.

The Section adjourned.

A PERPLEXED EDITOR.

The Americans are a go-ahead race, but lately the editor of the *St. Louis Medical and Surgical Journal* refused to publish a communication attributing eczema to "sponggia" and proving it by describing a case where inoculation led to the reproduction of the spicules of carbonate of lime peculiar to spongilla, until the author sent him his microscopic preparations to examine. After a delay (caused by the compulsory retirement of the author for three months, owing to a reading of the law of the State of Kansas on his part differing from that of the State's Attorney), he hastened to mail a specimen of the exudate, which proved to be a cloudy spot on a piece of window glass and *minus* a cover. When the editor cleared and examined the specimen he found only a remarkably healthy-looking aggregation of human spermatozoids!

CLINICAL RECORDS.

Notes on Uncommon Forms of Skin Diseases.[a] By R. GLASGOW PATTESON, M.B., Univ. Dubl.; F.R.C.S.I.; Surgeon in charge of the Skin Department, St. Vincent's Hospital, Dublin.

III. ERYTHEMA MULTIFORME WITH ERYTHEMA NODOSUM.

M. M., aged twenty-three, a gardener, came to St. Vincent's Hospital on October 10th, 1890, complaining of general pains and weakness, and of a rash on his neck, which had appeared during the previous night. He looked somewhat flushed, but was not feverish; pulse 82, full and strong; tongue white and coated. There had been slight constipation. His previous history was good; he had never suffered from rheumatism or any illnesses, except some of those which seem inseparable from childhood. Save for some itching spots (*Erythema urticatum*) on the hands, arms, and legs, which had troubled him during the past fortnight, and the marks of which were in parts still visible, he had been in his usual health up to the previous Monday (the 6th), when he got a severe wetting, and the same evening felt pains in his back and legs, and was more tired than usual after his day's work. The next day the pains continued and increased in intensity, and on Wednesday he felt sore and aching "all over." Accordingly on that evening he took a "noggin of whiskey hot" on going to bed, and in a couple of hours awoke with a tingling sensation all round his neck, which he found was covered with "pimples," which were neither painful nor itching. In the morning the pains from which he had previously suffered were to a great extent gone, and he walked in from Donnybrook to the hospital to seek advice about "the rash." On stripping the patient it was seen that the whole back of the neck was covered with large, irregular, papular elevations, of a deep red colour, the smaller, with rounded or conical summits, being about the size of a split pea, and the larger, with irregularly tuberculated summits, being about the size of a shilling in diameter, and raised from half to three-quarters of an inch above the surrounding skin. They spread fairly symmetrically on both sides downwards towards the clavicle, and outwards towards the shoulder, not extending lower than the level of the isthmus of the thyroid, where the eruption almost met in the middle line. The forehead and cheeks were free, the spots on both sides just passing behind the angle of the lower jaw, and while not following the distribution of any cutaneous nerve, the parallel obliquity of the course of the eruption, downwards and outwards, seemed to bear a certain relation to the natural skin-creases of the neck. There were no spots on the trunk, hands, or feet. The papillated summits of many of the larger tubercles were studded with minute vesicles, which seemed on some of them to be on the point of merging into larger single blebs. There was no itching, no tenderness on pressure, and the tingling which accompanied the outbreak had quite passed away. The symmetry of the eruption, though not perfect, was sufficiently striking, but was more marked at the back of the neck than in front.

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[a] Continued from the number of this Journal for April, 1890. Vol. LXXXIX., p. 369. No. 220. Third Series.

When questioned as to the occurrence of spots on the legs or feet, he replied that he had noticed only one small spot on his leg when rising in the morning, but that he had felt his shins very painful while walking into town, and afterwards while waiting. On examination it was found that a well-characterised eruption of erythema nodosum was present on both legs, the right—the one on which he had noticed the spot in the morning—showing the most advanced forms. The largest node was just in the middle of the tibial crest, and was about an inch and a half in diameter, and seated upon a widely-diffused erythematous base. Both it and the smaller spots were, as usual, exquisitely tender, and hot lead lotion was ordered to be kept constantly applied to them. No local treatment was adopted for the neck, but Startin's mixture was ordered internally.

Oct. 15.—Came back to-day feeling much better, free from pains, but very "weak on his legs." The seat of the eruption on the neck was marked by dusky-red, slightly raised patches, over many of which the skin was peeling in large flakes, showing where small groups of vesicles or bullæ had existed. The legs were painless except after walking or standing too long, and the nodes had subsided, leaving only dusky purplish patches which were just commencing to exhibit in parts changes of colour. He had in the interval, on the day after his first visit, suffered from a copious outbreak of large spots on the backs of both hands, identical, he was positive, with those he had had on the neck. They had been unaccompanied by tingling or tenderness, and numerous dark-red, slightly elevated patches, varying in size from a threepenny piece to a shilling, symmetrically grouped on the backs of both hands and wrists, and closely resembling, though in an earlier stage of retrogression, those present on the neck, testified to the accuracy of the statement. As the medicine had purged him somewhat too freely, he was put on iron and quinine mixture, and the local applications were stopped.

Three days later (Oct. 18) he presented himself with a slight recurrence of the nodes on the legs, unaccompanied by any constitutional disturbance. This was treated by local applications. The patches on the neck were now quite level with the surrounding skin, but their site was marked by a deep brownish discoloration, and by still persisting traces of the desquamation that followed their subsidence. From this date he gradually recovered without further trouble, and was soon able to resume his usual employment.

Erythema multiforme—the term applied by Hebra to cover all the allied manifestations of the erythematous group—is a sufficiently rare affection in itself to merit some brief consideration. It is supposed to be most common in the young, and in the spring and fall of the year. According to some authorities it is said to be more frequently met with in males than in females—an inversion of the rule as regards erythema nodosum. The eruption generally appears in one outbreak, some precedent tingling or itching of the skin being felt, but actual pain is rare. The onset is usually attended with some malaise and flitting pains, but it may be associated with a distinct rheumatic outbreak—pains in the back, loins, and extremities, with swelling and inflammation of the joints, into which effusion may subsequently take place. Its seats of predilection are the face, especially the forehead, the backs of the hands and arms, and the feet. In rare cases the eruption is general, covering all regions of the body without distinction, and in these cases the type-manifestation of its characters will be found in the immediate neighbourhood of the most acutely inflamed joints. Its association, in common with all members of the group of erythematous affections, with a rheumatic diathesis, is now generally recognised, due weight being first attached to the relationship by Dr. Tilbury Fox. Its occasional occurrence with E. nodosum is a striking proof of the closeness of the blood relationship; though, indeed the rarity of such an association might be used as an argument on the other side. Dr. Thin states that *Erythema nodosum* may occur with any of the forms of *Erythema multiforme* (Quain's "Dict. of Medicine"), but no cases are quoted; and Dr. Crocker, referring to E. nodosum, writes: "It has been seen along with E. multiforme" (Tilbury Fox, "Diseases of the Skin," 1888). The rarity of the synchronous outburst of these two varieties of the same essential pathological process seems therefore unquestionable.

The features that merit special attention in the case are those which insist on the identity of the erythematous affections in general:—

1. The precedent and persistent attacks of *Erythema urticatum*, shown by the marks of the small wheals on his hands and forearms.

2. The almost complete subsidence of the general rheumatic pains on the outburst of *Erythema multiforme* on the neck.

3. The slight recurrence of the general pains, and the marked local pain and tenderness which ushered in the attack of *Erythema nodosum*.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.;
F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, November 1, 1890.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Oct. 11.	Oct. 18.	Oct. 25.	Nov. 1.		Oct. 11.	Oct. 18.	Oct. 25.	Nov. 1.
Armagh -	5·2	5·2	10·3	15·5	Limerick -	8·1	12·1	12·1	12·1
Belfast -	22·0	22·2	22·9	17·5	Lisburn -	4·8	19·3	14·5	24·2
Cork -	13·0	24·7	13·6	13·6	Londonderry	30·3	12·5	16·0	25·0
Drogheda	16·9	25·4	16·9	8·5	Lurgan -	20·5	0·0	5·1	15·4
Dublin -	18·9	20·7	24·1	23·5	Newry -	14·0	14·0	14·0	7·0
Dundalk -	8·7	8·7	4·4	8·7	Sligo -	0·0	9·6	9·6	14·4
Galway -	0·0	13·4	16·8	30·8	Waterford -	16·2	32·4	13·9	13·9
Kilkenny	21·1	21·1	33·8	12·7	Wexford -	21·4	8·6	25·7	17·1

In the week ending Saturday, October 11, 1890, the mortality in twenty-eight large English towns, including London (in which the rate was 17·4), was equal to an average annual death-rate of 19·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·2 per 1,000. In Glasgow the rate was 19·1, and in Edinburgh it was 17·8.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 18·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in seven of the districts to 9·3 in Waterford—the 7 deaths from all causes registered in that district comprising 1 from typhus and 3 from diarrhœa. Among the 98 deaths from all causes registered in Belfast are 2 from whooping-cough, 2 from enteric fever, and 6 from diarrhœa; and the 17 deaths in Londonderry comprise 2 from diarrhœa.

In the Dublin Registration District the registered births amounted to 169—94 boys and 75 girls; and the registered deaths to 132—68 males and 64 females.

The deaths, which are 34 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 19·5 in every 1,000 of the estimated population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 18·9 per 1,000. During the first forty-one weeks of the current year the death-rate averaged 26·3, and was 1·8 under the mean rate in the corresponding period of the ten years 1880–89.

Twenty-five deaths from zymotic diseases were registered, being 1 over the number for the preceding week, but 3 under the average for the 41st week of the last ten years. They comprise 1 from measles, 1 from typhus, 2 from whooping-cough, 6 from enteric fever, 7 from diarrhœa, 2 from dysentery, and 1 from erysipelas.

Nineteen cases of enteric fever were admitted to hospital, being 11 over the number of admissions for the preceding week, and 5 over those for the week ended September 27. Nine enteric fever patients were discharged, 2 died, and 62 remained under treatment on Saturday, being 8 over the number in hospital at the close of the preceding week.

Only 1 case of typhus was admitted to hospital; 11 cases of this disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 20, being 7 over the low number for the preceding week, but 8 under the average for the 41st week of the last ten years. The 20 deaths comprise 12 from bronchitis and 6 from pneumonia or inflammation of the lungs.

In the week ending Saturday, October 18, the mortality in twenty-eight large English towns, including London (in which the rate was 20·6), was equal to an average annual death-rate of 20·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·4 per 1,000. In Glasgow the rate was 22·0, and in Edinburgh it was 19·0.

The average annual death-rate in the sixteen principal town districts of Ireland was 20·1 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in nine of the districts to 5·2 in Belfast, the 99 deaths from all causes registered in that district comprising 4 from scarlatina, 1 from typhus, 3 from whooping-cough, 1 from diphtheria, 9 from enteric fever, and 5 from diarrhœa.

In the Dublin Registration District the registered births amounted to 149—85 boys and 64 girls; and the registered deaths to 144—76 males and 68 females.

The deaths, which are 22 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 20·7 per 1,000. During the first forty-two weeks of the current year the death-rate averaged 26·2, and was 1·9 under the mean rate in the corresponding period of the ten years 1880-89.

Twenty-four deaths from zymotic diseases were registered, being equal to the average for the corresponding week of the last ten years, but 1 under the number for the week ended October 11. They comprise 1 from typhus, 4 from whooping-cough, 1 from simple continued fever, 4 from enteric fever, and 13 (including 11 of infants under one year old) from diarrhœa.

The number of cases of enteric fever admitted to hospital is 16, being a decline of 3 as compared with the admissions for the preceding week. Seven enteric fever patients were discharged, 1 died, and 70 remained under treatment on Saturday, being 8 over the number in hospital at the close of the preceding week.

Five cases of typhus were admitted to hospital against 1 case in the preceding week. Fifteen cases of this disease remained under treatment in hospital on Saturday.

Twenty deaths from diseases of the respiratory system were registered, being equal to the number for the preceding week, but 11 under the average for the 42nd week of the last ten years. They comprise 12 from bronchitis and 5 from pneumonia or inflammation of the lungs.

In the week ending Saturday, October 25, the mortality in twenty-eight large English towns, including London (in which the rate was 19·5), was equal to an average annual death-rate of 20·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·1 per 1,000. In Glasgow the rate was 24·3, and in Edinburgh it was 17·5.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 20·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in eight of the districts to 5·2 in Armagh—one of the 2 deaths from all causes registered in that district being from diphtheria. Among the 102 deaths from all causes registered in Belfast are 3 from scarlatina, 3 from whooping-cough, 1 from simple continued fever, 2 from enteric fever, and 7 from diarrhœa; while the 21 deaths in Cork comprise 1 from typhus and 1 from diphtheria.

In the Dublin Registration District the registered births amounted to 153—68 boys and 85 girls; and the registered deaths to 166—72 males and 94 females.

The deaths, which are 3 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·5 in every 1,000 of the estimated population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 24·1 per 1,000. During the first forty-three weeks of the current year the death-rate averaged 26·2, and was 1·8 under the mean rate in the corresponding period of the ten years 1880–89.

The number of registered deaths from zymotic diseases is 21, being 4 below the average for the corresponding week of the last ten years, and 3 under the number for the week ended October 18. The 21 deaths consist of 2 from typhus, 3 from whooping-cough, 1 from diphtheria, 4 from enteric fever, 9 (all of which were of children under 5 years of age) from diarrhœa, and 2 from dysentery.

Twenty-eight cases of enteric fever were admitted to hospital, being 12 in excess of the admissions for the preceding week and 9 over the number for the week ended Saturday, October 11. Eleven enteric fever patients were discharged, 1 died, and 86 remained under treatment on Saturday, being 16 over the number in hospital at the close of the preceding week.

Fourteen cases of typhus were admitted to hospital against 5 for the preceding week and 1 for the week ended Saturday, October 11. Four patients were discharged, 3 died, and 22 remained under treatment on Saturday, being 7 over the number in hospital at the close of the preceding week.

Twenty-six deaths from diseases of the respiratory system were registered, being 6 over the number for the preceding week, but 8 under the average for the 43rd week of the last ten years. They comprise 13 from bronchitis and 9 from pneumonia or inflammation of the lungs.

In the week ending Saturday, November 1, the mortality in twenty-eight large English towns, including London (in which the rate was 21·4), was equal to an average annual death-rate of 22·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·8 per 1,000. In Glasgow the rate was 23·9, and in Edinburgh it was 20·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 19·2 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·5 per 1,000, the rates varying from 0·0 in eleven of the districts to 1·8 in Londonderry—the 14 deaths from all causes registered in that district comprising 1 from diarrhœa. Among the 78 deaths from all causes registered in Belfast are 1 from whooping-cough, 3 from enteric fever, and 3 from diarrhœa.

In the Dublin Registration District the registered births amounted to 134—79 boys and 55 girls; and the registered deaths to 171—87 males and 84 females.

The deaths, which are 9 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·3 in every 1,000 of the estimated population. Omitting the deaths (numbering 12) of persons admitted into public institutions from localities outside the district, the rate was 23·5 per 1,000. During the first 44 weeks of the current year the death-rate averaged 26·1, and was 1·9 under the mean rate in the corresponding period of the ten years 1880–89.

The number of registered deaths from zymotic diseases is 20, being 7 below the average for the corresponding week of the last ten years, and 1 under the number for the week ended October 25. The 20 deaths comprise 1 from measles, 4 from typhus, 1 from influenza, 3 from whooping-cough, 1 from diphtheria, 2 from enteric fever, 3 from diarrhœa, and 2 from dysentery.

The number of cases of enteric fever admitted to hospital is 19, showing a decline of 9 as compared with the admissions for the preceding week. Seventeen enteric fever patients were discharged, 1 died, and 87 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

Typhus cases also show a large decrease as regards admissions to hospital, when compared with the returns for the preceding week, the number admitted during last week being 7, or 7 under that for the week ended October 25. One typhus patient was discharged, 3 died, and 25 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

Only 13 deaths from diseases of the respiratory system were registered, being 24 below the average for the corresponding week of the last ten years, and 13 under the number for the week ended October 25. They comprise 7 from bronchitis and 3 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N. Long.* 6° 15′ *W., for the Month of October,* 1890.

Mean Height of Barometer,	30·109 inches.
Maximal Height of Barometer (on 22nd, at 9 p.m.),	30·559 „
Minimal Height of Barometer (on 26th, at 9 a.m.),	29·486 „
Mean Dry-bulb Temperature,	50·9°.
Mean Wet-bulb Temperature,	49·1°.
Mean Dew-point Temperature,	47·2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·329 inch.
Mean Humidity,	87·2 per cent.
Highest Temperature in Shade (on 5th),	65·2°.
Lowest Temperature in Shade (on 27th),	34·2°.
Lowest Temperature on Grass (Radiation) (on 27th),	28·9°.
Mean Amount of Cloud,	52·6 per cent
Rainfall (on 11 days),	·639 inch.
Greatest Daily Rainfall (on 25th),	·164 inch.
General Directions of Wind,	W., N.W.

Remarks.

October, 1890 will be remembered as one of the driest, finest, and mildest on record in the east of Ireland. In the west of this country and in Scotland it was much less favourable, the weather being often squally and wet. During the first fortnight temperature was almost always above the average. On the 25th a cold period set in, which culminated in Ireland on the 27th and in England on the 28th—the thermometer in the screen sinking to 20° at Loughborough, 23° at Oxford and Dungeness, and 24° in London. This premature "cold-snap" was followed by mild, dull, and damp weather to the end of the month. As regards atmospherical pressure, the general tendency was for an area of high barometer (anticyclone) to stretch across Ireland, England, and Central Europe, while areas of low pressure swept eastwards across Northern Europe.

In Dublin the mean temperature (51·7°) was considerably above the average (49·7°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 50·9°. In the twenty-five years ending with 1889, October was coldest in 1880 (M. T. = 45·4°), and in 1885 (M. T. = 45·5°), and warmest in 1876 (M. T. = 53·1°). In 1886, the M. T. was as high as 52·0°; in the year 1879 (the "cold year"), it was 49·7°. In 1887, it was as low as 47·3°; in 1888, it was 49·1°, and in 1889 it was only 48·1°.

The mean height of the barometer was 30·109 inches, or 0·269 inch above the average value for October—namely, 29·840 inches. The mercury rose to 30·559 inches at 9 p.m. of the 22nd, and fell to 29·486 inches at 9 a.m. of the 26th. The observed range of atmospherical pressure was, therefore, 1·073 inches—that is, a little less than an inch and one tenth.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 50·9°, or 8·0° below the value for September, and 5·4° below that for August, 1890. The arithmetical mean of the maximal and minimal readings was 51·7°, compared with a twenty-five years' average of 49·7°. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·486), the value was 51·5°, or 2·0° above the average mean temperature for October, calculated in the same way, in the twenty-five years, 1865–89, inclusive (49·5°). On the 5th, the thermometer in the screen rose to 65·2°—wind, W.S.W.; on the 27th the temperature fell to 34·2°—wind, N.W. The minimum on the grass was 28·9° also on the 27th; on three nights the thermometer sank below 32° on the grass.

The rainfall was only ·639 inch, distributed over 11 days—both rainfall and rainy days were largely below average. The average rainfall for October in the twenty-five years, 1865–89, inclusive, was 3·106 inches, and the average number of rainy days was 17·6. In 1880 the rainfall in October was very large—7·358 inches on 15 days. In 1875, also, 7·049 inches fell on 26 days. On the other hand, in 1884, only ·834 inch was measured on but 14 days, and in 1868 only ·856 inch on 15 days. In 1888, the rainfall was 1·227 inches on 16 days, and in 1889 no less than 4·853 inches fell on 22 days. From these figures, October, 1890, proves to have been the driest on record for more than a quarter of a century at least.

A lunar halo was seen on the 23rd. High winds were noted on 14 days, but attained the force of a gale on only one occasion—the 15th. The atmosphere was more or less foggy in Dublin on the 8th, 9th, 11th, 12th, and 22nd. Lightning was seen on the evening of the 26th. Snow and sleet fell on the morning of this same day, and hail on the 15th.

A great dip in temperature accompanied a ridge of high pressure which travelled from W. to E. across Ireland and England on Wednesday and Thursday, the 1st and 2nd, but the thermometer soon recovered itself as a fresh S.W. wind sprang up.

The general character of the weather during the week ending Saturday, the 11th, was fine in the south, unsettled and rainy in the far north, cold in Scandinavia. The barometer stood high in an anticyclone stretching east and west across Central Europe, and interrupted only for a time on Tuesday, the 7th, by the appearance of a depression over Ireland, which subsequently moved southeastwards and underwent considerable modifications both in size and intensity. This system caused the only bad weather of the period in Ireland and England—a heavy fall of rain occurring on the 7th over the greater part of both countries. In the rear of this disturbance the barometer rose with great rapidity, and the anticyclone became re-established, lasting to the end of the week and causing beautiful weather. Winter seemed to be setting in with considerable severity over Northern Europe as the week passed by. In Dublin the mean height of the barometer was 30·210 inches. The corrected mean temperature was 55·4°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 54·6°. The thermometers in the screen rose to 65·2° on Sunday and fell to 39·9° on Thursday. Rain fell to the amount of ·036 inch. The prevailing wind was W.S.W.

At first fair and bright, the weather of the week ended Saturday, the 18th, afterwards became unsettled—squally, showery, and cold. Towards the end of the week an improvement took place, so that the period under review proved generally favourable. During the first three days a large anticyclone over Central Europe included in its influence England and the southern half of Ireland, while conditions were cyclonic over the northern portion of the British Islands. Dense fogs occurred at this time in England, where temperature was very low by night and in the mornings. On and after Tuesday, the anticyclone retreated southwards and an extensive V-shaped depression encroached upon Western Europe. In the rear of its axis, strong N.W. winds sprang up, accompanied by showers of cold rain, hail, and some sleet. At several English stations thunder and lightning occurred on Wednesday and Thursday. On Friday the weather improved and Saturday was fine. In Dublin the mean pressure was 30·064 inches. The corrected mean temperature was 49·4°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 48·8°. Rain fell to the amount of ·164 inch, ·062 inch being measured on Wednesday, the 15th, when hail was also observed. The prevailing winds were W. and N.W.

Dull, but otherwise favourable and mild, weather prevailed during the greater part of the week ended Saturday, the 25th. On Friday conditions became less settled and a considerable rainfall occurred on Saturday morning. At first an anticyclone lay over Ireland, while a very extensive and deep depression had its centre over the Baltic Provinces of Russia. The winds were northwesterly and the weather was fine in Ireland. Four mild, cloudy days followed, with light drizzling showers from time to time in places. On Tuesday night a remarkable "chill" took place on the Continent and over the S.E. of England—at Belfort, in Alsace, the thermometer sank from 61° to 23° in less than twenty-four hours. On Friday the anticyclone moved away southwards, and large depressions began to encroach more and more upon the British coasts—the wind backed to W.S.W. and freshened considerably with rain or passing showers. In Dublin the mean height of the barometer was 30·255 inches, pressure rising to 30·559 inches, at 9 p.m. of Wednesday (wind, W.N.W.), the maximum of the month. The corrected mean temperature was 52·2°. The mean dry bulb temperature at 9 a.m.

and 9 p.m. was 51·3°. The thermometers in the screen fell to 40·8° on Sunday and rose next day to 59·9°. The rainfall was ·274 inch; there were three rainy days, and the heaviest fall in 24 hours was ·164 inch on Saturday. The prevailing wind was northwesterly.

The weather was in every respect most changeable during the closing period of the month (26th–31st, inclusive). At the beginning, the centre of an extensive and deep depression was found over the South of Sweden, while subsidiaries travelled southwards across the British Islands. Very unsettled weather prevailed, squally northerly winds, with showers of wet snow and hail being reported from many stations. In Dublin sleet and snow fell on the morning of Sunday, the 26th, and the mountains were white with snow. After nightfall lightning was seen, and thunder and lightning occurred in several places. The cold culminated in a severe frost over England on Monday night and Tuesday morning, the 27th and 28th. The lowest temperatures recorded in the screen were 20° at Loughborough, 23° at Dungeness and Oxford, and 24° in London. This premature cold was followed by an extraordinary and rapid rise of temperature, amounting in 24 hours to 28° at Loughborough, 24° at York and Oxford, 23° at Shields, and 22° in London. The remainder of the period was mild, the air being often damp.

The rainfall in Dublin during the ten months ending October 31st has amounted to 21·494 inches on 162 days, compared with 12·366 inches on 123 days during the same period in 1887, 19·219 inches on 147 days in 1888, 24·789 inches on 169 days in 1889, and a twenty-five years' average of 22·840 inches on 160·4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in October, 1890, was only ·600 inch, distributed over 13 days. Of this quantity ·160 inch fell on the 6th, and ·120 inch on the 14th. The rainfall at Greystones in October, 1889, was no less than 6·935 inches on 22 days, or more than eleven times as great as the fall in October, 1890.

SUICIDE WITH A PIN.

Dr. Magnan, Paris, has observed a case of suicide by means of an ordinary pin. The patient belonged to the class of anxious melancholics, and had several times attempted to commit suicide; finally she succeeded, by means of a pin introduced under the left mammary gland. The pin was an ordinary one, an inch in length, and penetrated in the sixth intercostal space, passed through the pericardium and injured the myocardium in different regions. Death took place by syncope, the cardiac arrest being due to effusion of blood, which filled the lower three-quarters of the pericardium, although no important vessel had been wounded.—*Ph. Med. and Surg. Reporter*, July 26th, 1890.

PERISCOPE.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1891. Essays intended for competition may be upon any subject in Medicine, and must be received by the Secretary of the College, Dr. Charles W. Dulles, on or before May 1, 1891.

DIPHTHERITIC PARALYSIS OF THE DIAPHRAGM.

Dr. Geo. W. Rachel, New York, reports (*Phil. Med. and Surg. Rep.*, July 26th) the case of a young girl, three years and ten months old. "On inspection (45th day of treatment) the respiratory movements of the chest were seen to be limited; they were mostly confined to the lower portion. Those of the abdomen were peculiar; it was drawn upward during inspiration, and returned downward quite suddenly on expiration. . . . . Furthermore, the abdomen, instead of descending and protruding with the inspiratory movements of the diaphragm and returning to their original position in an upward direction, with expiration, showed just the reverse type; the conclusion was evident that the diaphragm did not perform its function. This important muscle was paralysed.

OINTMENT FOR THE SKIN PIGMENTATION OF PREGNANCY.

Cocoa butter, 75 grammes; castor oil, 75 grammes; oxide of zinc, 0·30 grammes; yellow oxide of mercury, 0·15 grammes; essence of roses, a sufficiency. Mix. To be rubbed two or three times a day to the affected parts.—*Les Nouveaux Remèdes.*

NAPHTHOL β IN THE ENTERITIS OF INFANTS.

Moncorvo warmly recommends β naphthol as a remedy for infants suffering from enteritis after any of the exanthemata. He prescribes the drug in doses of from one to two grammes in the twenty-four hours, both by the mouth and as an injection. The improvement is rapid, the fæces cease to be fœtid, and colic disappears.—*Les Nouveaux Remèdes.*

HYDROCHLORATE OF QUININE.

We are so conservative in our habits that we continue using the sulphate of quinine, although we know that in the hydrochlorate we possess a more soluble salt and one having a larger percentage of the alkaloid. The bi-hydrochlorate of quinine is soluble in water, and does not irritate the skin when used hypodermically. M.M. Villejean et de Beurmann recommend the following formula for hypodermic use:—Bi-hydrochlorate of quinine, 5 grammes; distilled water to make 10 cubic cent.—*Tribune Médicale.*

IRISH ALCOHOLISM IN AMERICA.

DR. CHARLES L. DANA gives (*New York Medical Journal*, June 14th, 1890) an analysis of 3,735 serious alcoholic cases, considered by the police to need medical care, and sent by them to the Bellevue Hospital "cells." Dr. Dana says:—"Fully one half the persons are of Irish birth, whilst a little over a third are native-born. The preponderance of Irish parentage, even in the native-born, however, is very great. In my own studies of nervous and mental diseases, in connection with immigration, I found an excessive number of Irish-born among the insane and neurotic."

THE LETHAL DOSE OF ALCOHOL.

ACCORDING to Alglave, it takes 620 grammes, or about 1¼ pints, of pure ethylic alcohol to kill a man of one hundred and sixty pounds weight, while 88 grammes, or about three ounces, of amylic alcohol would do the same.

DENTISTRY IN INDIA.

THE sum of 8,000 rupees has been paid by the Nizam for the extraction of two teeth. A few patients of such liberal views on professional remuneration would be welcome in this country.

ELECTRIC LIGHT.

DR. STANISLAUS TH. VON STEIN, of Moscow, reports that electric light has the advantage of being a powerful anodyne. Intercostal neuralgia disappears under the beneficent light, and pulmonary and laryngeal tuberculosis, which required the continuous use of morphin, to the extent of a grain daily, were cured by turning on the light. The dull season may account for such padding material in our contemporary the *B. M. J.*

SALOL IN TONSILLITIS AND PHARYNGITIS.

DR. J. WRIGHT (*Am. Journal Med. Science*) reports the successful treatment of 50 cases with salol. He divides his cases into three groups:—1. Treatment commenced first or second day of sickness. 2. Treatment commenced third day. 3. Treatment commenced after third day. 1st group, 21 cases, average duration 17 hours; 2nd group, 14 cases, average duration 27 hours. The drug was given in 0·60 gramme doses. With

Gouguenheim he concludes that salol acts favourably in tonsillitis; that it lessens inflammation and relieves pain; that sometimes it cuts short the attack; it lowers the temperature. To produce these good effects salol must be given to the extent of four grammes daily.

CÆSAREAN SECTION.

The first successful case of Cæsarean section on the living patient performed in the three kingdoms was performed in January, 1738, by a handy-woman, Mary Dunally, with a razor, on Alice Neal, at Charlemont, between Armagh and Dungannon. Twenty-seven days after the operation the patient was able to attend Armagh market, walking to and from the city with her marketing.

CREASOTE.

To mask the smell and flavour of creasote in pills the *Deutsche medicinische Zeitung* recommends finely-ground freshly-roasted coffee.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Cocoa Preparations.

We have received from Messrs. Cadbury, Brothers, of 2 Rood Lane, London, E.C., a sample case of their well-known cocoa preparations and *confitures.*

Their registered "Cocoa Essence" consists solely of fine cocoa nibs, with the excess of fatty matter extracted. It is said to be closely allied to milk in the large proportion of flesh-forming elements which it contains—34·75 per cent. The essence supplies a light and invigorating beverage.

Another elegant preparation is the "Mexican chocolate," which Messrs. Cadbury guarantee to consist solely of the finest cocoa and sugar, slightly flavoured with vanilla. This chocolate may be prepared with water, or milk and water. Although not so delicious, the former mode of preparation may be more suitable for those who cannot take milk alone. Cream may, however, be partially substituted for water, and the mixture then forms a light and agreeable beverage. It should on no account be boiled in an iron vessel, unless properly tinned or enamelled. A variety of this preparation is the "Traveller's fine vanlila chocolate."

The "Coffee Crêmes" made by the same firm have a delicious flavour, and the boxes of *confitures* or *bon bons* cannot fail to become most popular among young people during the approaching Christmas season.

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Printed by John Falconer, 53, Upper Sackville-street, Dublin.

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